

## US policy worries the UK

THE US Defence Department's clamp down on exports of technology is being viewed with growing apprehension on both sides of the Atlantic. Computer industry leaders fear political changes may stem the flow of ideas between firms and research institutes, and prevent fruitful collaboration on innovative projects.

The Reagan administration's recent hawkish pronouncements have served to fuel the worry that the quest to keep the free world free of nuclear weapons might mean putting on an economic and intellectual straitjacket.

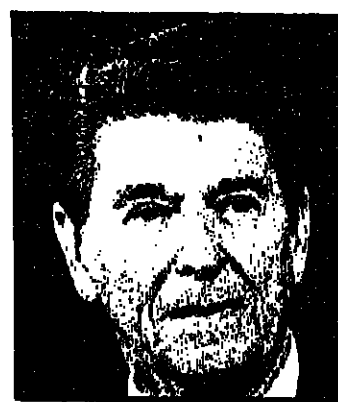
The US government's permanent preoccupation with nuclear missiles in Eastern Europe is now accompanied by an increasing obsession with "the fire in its backside" - Central America - and a perceptible shift from the free trade philosophy towards protectionism in economic policy.

These three factors lie behind continuing discussions in Congress to draft a new law on export restrictions to succeed the current one which expires on September 1.

Traditionally, review of export licences is a Commerce Department domain, with Defence taking over its shoulder. But now the Pentagon is demanding a bigger say, with power of veto over proposed sales of computers, microprocessors and associated products.

A Commerce Department spokesman in Washington told *Computer Weekly*: "They want to extend their right to monitor exports and to establish a right to stop the selling abroad of sensitive products which they think could do an enemy."

He added: "But this department wants to keep the status quo. And



REAGAN... Hawkish.

the Pentagon is still far from having won the argument."

In 1981 there were about 64,000 licence applications to nations friendly to the US and some 8,000 to the Communist world, of which the Defence Department looks at one-third through COCOM, the NATO co-ordinating committee.

COCOM (the Co-ordinating Committee for Exports to Communist Areas) is in session in Paris at the moment, considering its future policy. In the past Defence has had no right to oversee any sales to non-Communist countries.

Jack Hartley, president of the giant Harris Corporation, told a US chamber of commerce luncheon in London last week that he viewed developments with some concern.

"I believe there has been an over-reaction," he said. "The clampdown proposed is beyond what is realistic and will bring changes in US trading practices."

But he still felt the administration would probably see sense and not "do stupid things".

The British Embassy in Washington has been orchestrating a gigantic campaign, with international backing, to influence Congress opinions; but a Trade Department spokesman in London said they had so far had little success.

The US wanted to extend its laws into other countries and interfere with their economies, he said.

## DoI gives new export boost

by John Kavanagh  
NEW government backing for UK computing exports is about to be announced by the Department of Industry. The department is setting up a permanent export council following the success of the pilot ExportIT scheme.

ExportIT was set up at the end of 1981 as part of Information Technology Year. It was funded to the tune of £250,000. During the year it backed trading missions for UK firms to the US, Japan, Singapore and the Middle East and brought potential overseas buyers to the UK.

The venture gave UK firms overseas contacts representing business totalling £10 million. The mission to the Comdex exhibition in the US gave the companies taking part some 220 good enquiries.

The department says the future of ExportIT has been reviewed but no decision has been reached. But it is understood that a government agency is already looking for a director for the council.

Loud criticism of government support for the information technology industry was put to the Parliamentary Information Technology Committee in February by Seicom managing director Warren Werblow.

"As a country we haven't really made much headway in recent years in software exports," he told MPs. "British software has a deserved reputation for quality but can we really say we've capitalised on this, with exports running at £50 million and a home market of about £1 billion?"

Donald Moore, ExportIT chairman, added that some areas of the industry itself were not giving enough backing to export ventures.

The government seems to have taken note of these and other criticisms. This week Computing Services Association director general Douglas Byelions welcomed the government's latest moves. But he hoped there would be more money.

"The information technology industry has very wide scope and £250,000 will not go far," he said. "If that amount was concentrated on software it would be a good sum."

Byelions added that the government had a clear role to play in supporting exports. That support need not take the form of financial backing. It could come in the form of encouragement, contacts and reference sales, he said.



WERBLOW... His advice was headed.

## No contest plea made in secrets case

THE last defendant in the criminal case charging 14 Hitachi employees with stealing IBM secrets has pleaded "no contest". The plea was accepted by a federal judge in San Jose, California, against the objections of the prosecution.

The plea is similar to a guilty plea but cannot be used as evidence in a civil case. The judge has ordered the full trial transcripts to be released.

## System 36 launch

IBM's long awaited System 36 small business system was released this week at the National Computer Conference in Anaheim, and is set to supersede the ageing System 34. It gives increased performance at lower price while readily running the bulk of System 34 application software plus extensive new menu driven office and text management programs. System 36 is scheduled for UK deliveries in September. Prices will run from £14,000 to £41,000.

## £464,000 research

ICL and the Science and Engineering Research Council are putting £464,681 into a research project aimed at increasing programmer productivity. This year's Wilkes prize from the British Computer Society went to work with a similar aim. See story on page 2.

## NCR mainframes

NCR launched a battery of seven new mainframes in its V8600 series at the NCC exhibition on Anaheim. Their performance spans the range covered by IBM's 4341-11 to 3038J mainframes. A spokesman for NCR UK said that there is no date for their UK appearance.

## Computing survives world's recession

by John Kavanagh  
THE computing industry is emerging as one of the few survivors of the world recession. Computing firms are racing up the league tables of sales, profit and market value while other leading industries, especially oil, are struggling, according to tables in the top 500 US companies in Forbes business magazine.

IBM has taken over from American Telephone and Telegraph at the top of the market value league with a 72.1% increase. AT&T and IBM are first

and second in the profits table. And AT&T is second and IBM seventh in the sales league.

In all these tables most of the other top 10 companies - mainly in the oil business - show considerable decline.

Further down the tables computer firms have made big leaps ahead from last year's positions. The only exceptions are the big mainframe manufacturers, notably Sperry, Control Data, Honeywell and Burroughs, which show marginal increases.

But minicomputer specialists

Hewlett-Packard and Digital Equipment jump by up to 50 places in the tables. Hewlett-Packard, which does half its business in computers, is number 15 in the market value table, 136 in the profit league and 54 in the sales list. DEC's positions are 28, 155 and 46.

Office automation specialist Wang Laboratories comes into the top 500 in terms of sales at number 473. The company continues to capture the imagination of the US stock market: its market value is up by 86.9% to put it at 53.

Microcomputer firms also do well. Tandy and Apple leap by 50 places in two of the tables.

The industry's performance is one bright point in a year described by Forbes magazine as "the trough of a mighty breaker; the low point in a decade of stress and some serious declines".

Forbes notes that next year AT&T will be out of the top rankings after years as "the perennial champion of the 500s". This follows a ruling ordering the regional telephone companies to be hived off as separate firms.



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# CAFS delay costs ICL £32m order

by Andrew Thomas  
ICL's failure to deliver a VME version of CAFS has lost it another order - this time worth £32 million.

ICL was in the running for the computerisation of British Telecom's directory enquiry service, and was widely regarded as a strong competitor, but ICL's inability to ship the 2900 version of CAFS, CAFS-ISP, resulted in the deal going to telecommunications giant STC.

A pilot scheme carried out by British Telecom four years ago used the CAFS 800 system to handle enquiries on six million subscribers and gave an average response time of less than two seconds. But CAFS 800 only ran with 1900 range operating systems, and BT is committed to VME 2900.

CAFS-ISP is scheduled for first deliveries in the summer, but BT insisted on a demonstration, last year, when ICL did not have a working system. IBM and DEC also tendered for the deal, but DEC at least has the consolation of supplying the 60 PDP-11/44 minis which will run the system.

Although the order goes to UK-based STC, the technology involved comes from the US. Computer Consoles Inc, of New York, developed the enquiry system as long ago as 1976.

The system will start operations next year, covering the whole of the UK by 1986. In all 4,000 terminals will be installed, and BT claims that the average handling time for a directory enquiry will be reduced from 52 seconds to 40 seconds.

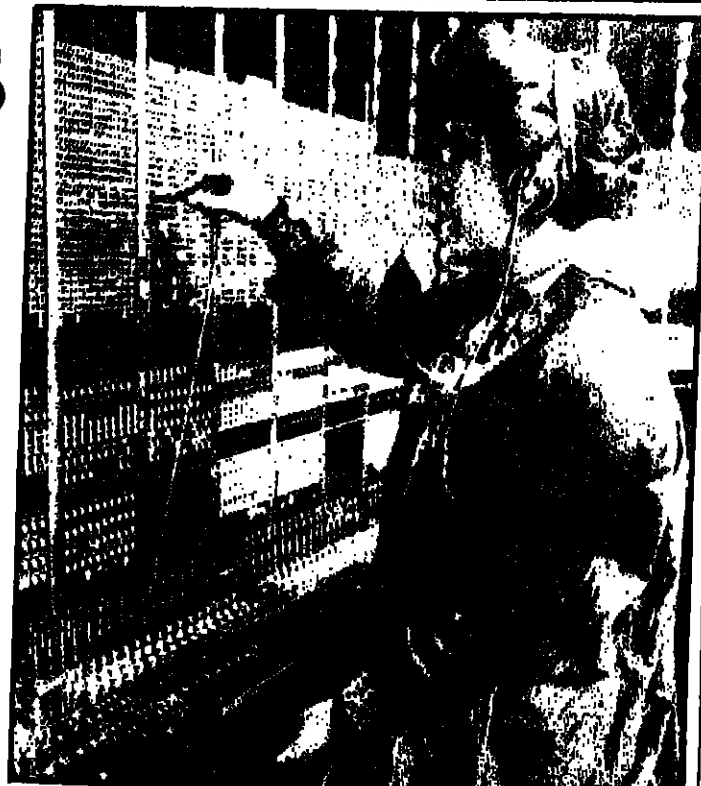
BT also intends to reduce the

number of directory enquiry operators from the present level of 10,000 to 7,500 by natural wastage. Little consideration appears to have been paid to the fact that the longest delay encountered by subscribers is not the time taken for an operator to look up a number, but the time taken for them to answer the phone. The reduction in the number of operators can only exacerbate this.

In January, ICL lost two orders from the BBC as a direct result of the non-availability of CAFS-ISP. One was for a database of newspaper cuttings. The other - a directory enquiry service.

ICL refused to speculate on how many other orders had been lost due to the long gestation period of CAFS-ISP, or to comment on whether CAFS would have outperformed the STC proposal.

BT also intends to reduce the



Ancient and modern - and a far cry from the less-than-two-seconds response time offered by CAFS.

## Parallel processing work wins BCS award

by John Kavanagh

WORK aimed at giving programmers control over the way their programs are executed and linking computers for parallel processing has won national recognition for Newcastle University.

The work, which could affect basic computer design, has won for the project team the British Computer Society's Wilkes Award.

The team is working on linking ICL Perq scientific microcomputers for parallel processing. It has also designed its own microelectronic processing elements which will be built at one of the Science and Engineering Research Council's chip fabrication plants.

The council has backed the Newcastle work for three years and is expected to renew the funding for the next three years.

The award has gone to Dr Paul Rautenbach, who was at Newcastle and then worked on artificial intelligence at Brunel University before joining Standard Telecommunications Laboratories' Microprocessor Technology Centre.

The others in the team, who are continuing the work at Newcastle, are Dr Philip Treleven and Richard Hopkins.

"The work involved looking at how processing power should be organised to handle a computation," said Rautenbach.

"This is fundamental to what computing is about. It involves the organisation of distributed and parallel processing elements. The next step is to design a machine to put these ideas into practice."

Rautenbach said the work had attracted interest from the industry.

And the Wilkes Award judges, including top industry and academic figures, said the work "will affect how computers will be designed in future."

The award was introduced three years ago to mark the retirement of a UK computing pioneer, Professor Maurice Wilkes of Cambridge University.

## Japan giants in £9 million systems house link-up

by John Kavanagh

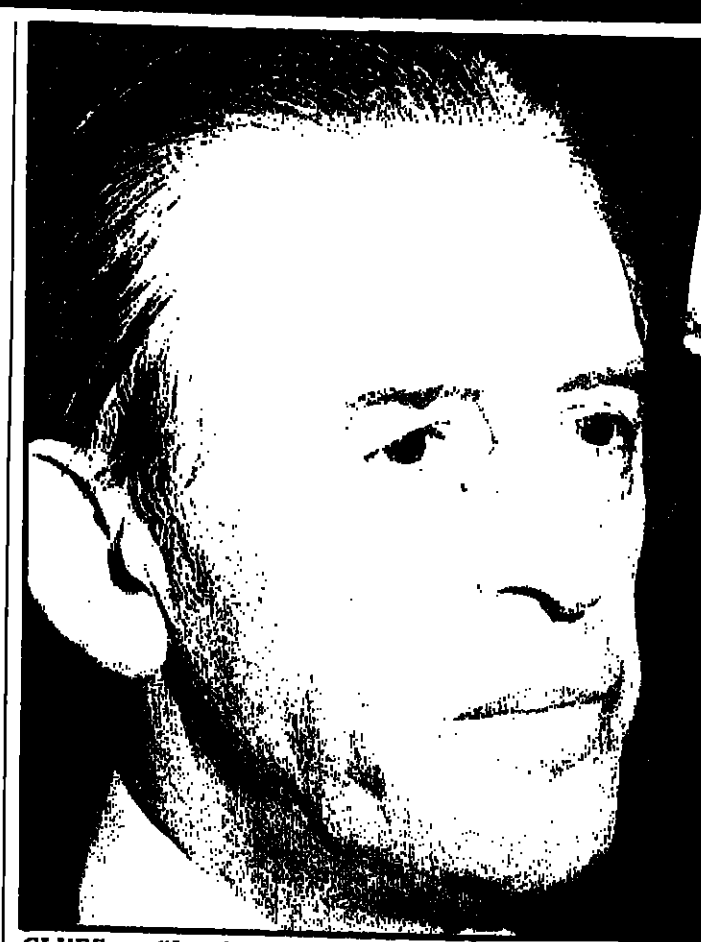
TWO of Japan's leading computing firms have teamed up to form a systems house aiming at sales of £9 million in three years.

Mainframe manufacturer Fujitsu, Japan's biggest computer company, and Matsushita, one of the leading electronics and small computer firms, have formed MF Information Systems. The 70-strong company will develop systems based on computers from Fujitsu, Matsushita and Panasonic, another joint-venture company which produces mini and microcomputers.

Fujitsu builds IBM-compatible mainframes and is IBM's fierce rival in Japan - and Matsushita is on the verge of signing a manufacturing deal with the US firm. That agreement will cover small business computers, office automation products and terminals.

Matsushita's move into mainframes comes 20 years after it pulled out of that market.

MF Information Systems will operate only in Japan.



CLUFF... "Intended to be a public relations exercise".

by Nuala Moran

THE Institute of Data Processing Management (IDPM) and the Local Authorities Management Services and Computer Committee (LAMSC) have set up an informal working party to redraft the Data Protection Bill.

Ted Cluff, secretary-general of the IDPM, hopes to prepare a first draft by the end of July. It will then be circulated to other interested bodies for their comments and suggestions.

"This is intended to be a public relations exercise," said Cluff. "I don't think the Data Protection Bill will be brought back in until the October session of Parliament. This should allow us plenty of time to draft a Bill in layman's terms."

"If the Home Office is faced with a widely representative group of people saying this is how we think the Bill should be, it will have difficulty resisting."

Commenting on what changes

he expected from the present Bill, Cluff said: "I would like the Bill to be workable, which the present one certainly isn't. It should meet the needs of those who think privacy is an issue. This government regards the matter as a trade issue not a secrecy problem."

Delegates at a one-day conference on data protection, held at the University of Leicester on May 11, seemed to reflect Cluff's view that the Bill should be redrafted before it came before Parliament again. About 128 delegates attended, representing local authorities, constabularies, examining boards, health authorities, banks and other commercial interests, government departments and university researchers.

The conference was chaired by Sir Norman Lindop. He opened the conference by stating: "The Data Protection Bill will never see the light of day again in its present form."

The government's approach to data protection was to have been presented by David Waddington, a Minister at the Home Office, but as the Bill has now fallen he declined to attend.

A critique of the Bill came from Paul Sieghart who was a member of the Lindop Committee. He said the UK had to have a Data Protection Bill which conformed in good faith with the European Convention on Data Protection and argued that the Bill as it stood did not.

He claimed that the Bill did not even achieve its UK objectives, saying it was "grossly over-regulatory of a vast number of users who won't even know whether or not they are complying unless there is a complaint against them."

Summing up, Lindop said that the dangers were greater in the public sector than the private because of the scale of personal information held by public bodies.

## Bright pupils highlight the need for teacher training

by John Kavanagh

SCHOOLCHILDREN are becoming expert at computing - but there is still an urgent need for more teachers.

That was the comment on the British Computer Society schools computing competition by Peter Hall, former ICL director and past president of the society, who chaired the judging panel.

The competition, part of the society's jubilee celebrations, attracted over 100 entries from primary and secondary schools and colleges. It was partly backed by the Department of Industry.

"The quality of all entries has been improving steadily," Hall said. "There are more and more signs that children know how to put systems together. There is also a much greater appreciation of what computers can do."

"But there's still a hell of a need for more teacher training."

Hall's views were backed by Ian Robley, who teaches computer studies at King James I School in Bishop Auckland, Durham.

"The pupils did all the work themselves," he said. "We have some superb programmers here. They work on the computer in the mornings and at lunch times. All the programming is in Basic but some pupils are moving on to machine code."

Robley is a chemistry teacher who has moved into computer studies by taking an in-service course. Three other staff teach the subject as a sideline.

The school has two Research Machines microcomputers and hopes to get some BBC machines with the £3,000 prize from the Department of Industry. The school

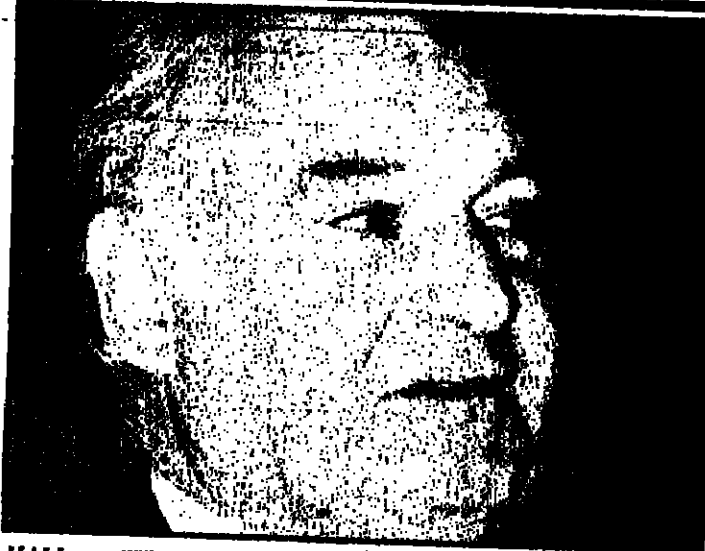
also won a Microvitec colour display.

The winning project involved developing a system to identify teachers who were available to supervise a class if a teacher was absent.

Headmaster Tony Howells said this was a contentious issue among teaching unions. "Some staff argue that they have to fill in more often than others," he said.

There were 27 winners for prizes from microcomputer firms and two public utilities. A primary school, Meldrum Primary in West Lothian, won a Commodore 64 for producing a "most professional" specification for a system to test reading and spelling.

Other entries covered almost everything from stage lighting control to maintaining records of dairy herds.



HALL... "There's a hell of a need for teacher training."

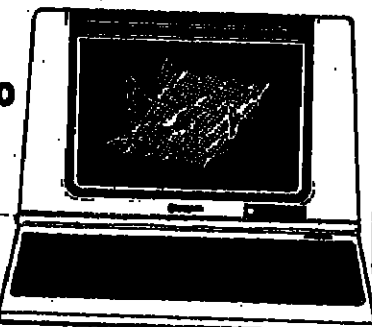
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## Smalltalk gets licensed

by George Black

XEROX has announced licensing plans for its Smalltalk-80 high level language and operating system which its fans claim will push CP/M and Unix out of the small computer market. Smalltalk was adopted by Apple under licence and used as the basis of the software of its high-powered 16-bit micro Lisa.

The corporation has hitherto given Smalltalk a low profile.

But its authors, Adele Goldberg and Dave Robson, have now published a textbook *Smalltalk-80, the Language and its Implementation*.

The high-level language and operating system was developed at Xerox offices in Palo Alto, California, and used as a research tool for

10 years before the company decided to commercialise it. It was demonstrated at the American National Computer Conference last June under the name of Xerox-1100 Interlisp-D.

The software centres on a Mouse electronic pointing device which opens up "windows" on the VDU screen and mixes text and graphics.

Xerox is now offering a deal at \$20,000 for licensee's internal use and next year at \$150 per unit for the licensee to make Smalltalk commercially available.

The software technology was passed on to Apple, which has used its concepts as the basis of its proprietary operating system for the new 16-bit micro Lisa.

## Staff to share £300,000

STAFF at bureau and systems house CMG will this year share out almost £300,000 at the rate of 38p a share for the several hundred staff shareholders.

And the group pushed its turnover to a record £21.5 million, 75% up on its last full year results in 1980/1 of £16 million and boosted its profits to over £1 million before tax. This is an increase of 34% on last year's eight-month figures, brought out to bring the company into the normal tax year.

Last year, almost 400 CMG staff put up £1.1 million to buy shares in the company after the departure of chairman Bryan Mills. This put control of the company, 56% in total, into the hands of what it terms "non-founder" employees.

The company has attracted a great deal of national attention over the years for being 100% owned by its working staff.

Over half of the group's revenues come this year from the continent, with its Dutch subsidiaries putting up 47.5% of the total revenues and over 53% of the profit. Operations in Belgium and Germany are being reorganised, according to the management.

The traditional information processing services part of the company provided about half of the group's turnover. This was boosted by over £2 million in revenue from its combination of packages, micros and bureau services sold under the single label of Microfact.

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## US plans a supercomputer

by Howard Karten

THE White House Office of Science and Technology Policy has asked the Energy and Defence Departments to lead the US government's role in developing a supercomputer.

At present, the two largest computers in the US are manufactured by Control Data and Cray

Research, both in Minnesota.

The Institute of Electrical and Electronics Engineers and US Academies Board Group, the ad hoc committee on scientific supercomputers, is to issue a report in August on US government initiatives required for maintaining the US lead in supercomputer development.



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## Banks take non-stop Chaps way

by John Kavanagh  
BANKS have moved closer to the automatic settlement of big payments with the acceptance of gateways to the Chaps (clearing house automated payment system) national clearing system.

The 12 London and Scottish clearing banks taking part in the Chaps project, plus the Bank of England, have installed Tandem Nonstop computers to link them to British Telecom's public packet switched service.

Nine banks will connect their mainframes to the network through the Tandem gateways, while the others will enter transaction details directly to the Tandem machines.

"Some of the big banks could make payments across the network from their existing branch terminals linked to their mainframes," said Ken Robey, Chaps manager at software house Logica, which won the £500,000-plus contract to develop the gateways.

Each gateway can handle 36,000 transactions a day. Transactions totalling billions of pounds will go across Chaps each day.

Chaps will clear payments the day they are made. The total paid and received by each bank will be sent through the network to the Bank of England every evening so the UK banking system's books can be balanced the same day.

Chaps is due to go live early next year. In the meantime the banks are arranging the links with their mainframes, while Logica is helping some of them set up the payments application on the Tandem machines under separate contracts.

## OEMs hint at future infidelity

by John Riley  
COMPUTER manufacturers should not expect systems houses to stay loyal to them, a systems house boss warned last week.

Voicing what many OEMs have thought for some time, Steve Russell, managing director of Sussex-based Scan Data International, said: "The days of fidelity to suppliers by systems houses are nearly over."

"In the past our hands have been tied to developing a software library for one manufacturer's equipment, but with the more universal use of standard operating systems there is less reason to stay with one supplier."

And to prove the point, Scan Data, an OEM for Texas Instruments minicomputers and Onyx microcomputers, is negotiating a £2 million deal with Toshiba. The plan is to market its T100 eight-bit Z-80 based briefcase CP/M micro with a liquid crystal display, and its new T300, an Intel 8088 based 16-bit PC which supports MS-DOS.

Russell also sells the Texas Instruments' PC, and recently bought up the trading rights for the Mecator Business Systems Intel-based Onyx lookalike, which he is pushing down to the PC level.

"We are almost becoming a

clearing house," he said. "We aim to have four or five PCs on the go because at any one time one might be more appealing than another to the market place in terms of functionality or price."

He has also looked at the top end of the minicomputer, but after a recent visit to the US to see networking developments he has decided to reject 32-bit technology and stay with 11.

"We were banging our head on the ceiling on the mini side of the business," he said.

"We took a look at the 32-bit technology offered by several companies and flirted with them, but with PCs and minis now being increasingly linked through Ethernet we see no need for it, and decided to stick with 16-bit minis."

Russell claims that Scan Data's first half results, due out in July, will be substantially better than for the same period last year. The turnover last year to December 1 was about £4.3 million with a profit of £304,000.

"Last year we were affected by the dollar, but we are now protected because TI equipment is bought in sterling, and we buy forward for the Onyx boxes, which cost a small proportion of the sold product."



RUSSELL... "The days of fidelity are nearly over."

## Fujitsu gets into its personal stride

by Ivan Beresny

IN introducing two Fujitsu PC models, the eight-bit micro 7 and 16-bit multi-user micro 16 the week after the Hannover Fair Klaus Brand, manager of Frankfurt-based Fujitsu Microelectronics GmbH and European marketing manager for the leading Japanese mainframe and robot supplier's micro products announced that their deliveries will start in October.

"Fujitsu is known as an OEM supplier in Europe, through our sales of big machines via Siemens, ICL and Burroughs," he said. "This gives us an image problem, which we'll have to overcome gradually to make good in a typical consumer products area like micros and personal computers."

Due to this, market introduc-

tion will take over a year, Brand predicted, disclosing that Fujitsu Microelectronics had already signed 15 agents and was aiming to build a network of 100 agents in West Germany alone.

In Japan, Fujitsu sold its first PCs in 1981, broadened the product spectrum the following year and is scheduled to produce 200,000 Micro 7s in 1983.

This model is to retail for "around DM 1,500" in Germany, and the Micro 16, in relation to which an added Z80A CPU allows for CP/M use, for "under DM 10,000".

Forecasting "a big push over the next three years," in the course of which 1980-founded Fujitsu Microelectronics is to come into its own, grabbing a 5% share of the PC market and occupying 15th

place in the league table of microcomputer suppliers in Europe, Brand said that the target was to sell DM 50 million (113m) worth of personal computers in Germany, England and France by the end of the 1984/85 fiscal year (March 31).

After a decade's presence in the Japanese market through distributors, Nixdorf Computer has established a Tokyo branch of its own, which will primarily concentrate on penetrating the Japanese market for office systems and will also serve as a springboard for opening new branches elsewhere in the Far East. The branch office "will look for a turnover of DM 3 million in the first year, and for increasing that tenfold by 1986" according to its managing director, Hans Wilke.

## Will Wang take Pick and Unix?

by John Riley

WANG has brought forward plans to put a version of Unix on to its Professional Computer, and the Pick operating system may follow.

"We have plans to extend the functionality of the PC both up and down," confirmed Reg Broughton, Wang's director of Marketing Support Services. "Both Unix and Pick have already been discussed and would go on plug-in boards, like the one we already have for CP/M emulation."

But Broughton ruled out any suggestion that Unix would go on Wang's minicomputers.

"Our own operating system for the VS Series is very good. As the PC is able to act as a workstation for the VS Series, we would be able to provide a distributed Unix environment off our own operating system."

Wang is well aware of criticisms about availability of software for its machines and is mak-

BROUGHTON... Discussing things.

ing sure that the PC is well stocked.

Two weeks ago Wang UK signed up with Peachtree to supply a standard set of general business application packages, plus one or two others - about nine in all - for the PC.

Wang will start selling these packages in a few weeks time when its PC dealer strategy, involving some 30 dealers, is announced.

Wang announced 3270 emulation for the PC at the NCC exhibition in the US, which comprises a plug-in board and all systems software, as well as a large library of third party software also to run on the PC.

## Geac goes public and raises \$24m

by George Black

GEAC, the Canadian mini and mainframe computer manufacturer, has gone public on the Canadian stock exchange, raising a total of \$23.5 million.

The independent firm, set up in 1971, came to the UK in 1975 and grew last year by 60% to a turnover of \$48 million, with £8 million being generated in Britain.

Most of the firm's development work is done in Canada but its successful AutoStar banking system was written in the UK at centres in London and Bristol.

AutoStar, which was the outcome of a collaborative venture between Geac and Midland Bank, has just been launched commercially in this country.

Geac's other main line of business is in educational and library-turnkey systems. The British Library lending division with 4.5 million entries, chose Geac as its chief supplier and other customers include Somerset County and the South Bank Polytechnic.

## SALES BRIEF

### Philips lands \$16m Indian phone deal

PHILIPS has won an order worth \$16 million to supply containerised processor controlled telephone exchanges to the Indian Post and Telecommunications. Ten exchanges have a 3,000 line capacity and 15 a capacity of 2,000 lines.

As part of the deal Philips will also be delivering a software centre and a training centre.

### ICL update

SHEFFIELD City Council is to spend £2.5 million in updating its ICL installation. A dual 2988 mainframe with 32 Mbytes of mainstore and 6,000 Mbytes of backing store controlled by CAFS-ISP is to be installed over the next 12 months. 140 DRS workstations are included in the package.

### NonStop telexes

VITEL, the telecommunications company based in London, has installed a Tandem NonStop computer at a cost of £350,000. This will be the basis of the Vitex service, storing and transmitting telexes worldwide at any time. The system also received calls for redirecting to subscribers, and provides multipoint telexing which enables one message to be automatically directed to a number of locations.

### German agent

COMPUTER maintenance company Quest International Computer Services, a subsidiary of Quest Automation, last week became UK service agent for the German made Wordnet 2000. This machine allows up to eight electronic typewriters to interface with a wordprocessor or micro or minicomputer.

### AIB online

THE Allied Irish Bank (AIB) will be providing fully online banking in Ireland within the next two years. The bank has ordered a nationwide data communications system from Racal-Milgo worth \$3 million. An enhanced CMS Series 2 network management controller will form the basis of the system. This is to be sited close to the AIB's IBM mainframe in Dublin.

### To the point

WITHIN the next few weeks NCR will be delivering an I-9300 mainframe computer system to the Aero Needles Group of Redditch. The system, which will cost Aero about £100,000 will initially have 19 terminals for use by sales, accounts and production staff. Over the next three years the number of terminals will be increased as wider use is made of the procedures.

### All at sea

THE Royal Navy has placed an order worth £2 million with Marconi Communications Systems for a remote control system for communications in home water. The system is to be based on a U 7000 microprocessor, and will be designed at Marconi's Radio and Line Division at Chelmsford. It will enable control and monitoring of all equipments at a number of remote sites throughout the UK from command and supervisory centres.

### Thorn deal

A £2 MILLION deal with Thorn Television Rentals has given ICL its first commercial CAFS user. A dual 2988 system with two CAFS-ISP processors and 250 DRS 20 workstations is to replace the existing 2972 mainframes.

### 6,000 printers

VIDEO games giant Atari has taken delivery of 6,000 Model 739 mini printers from Centronics. The printers, designed to deliver near letter quality text, are being connected to Atari 800 microcomputers.

# A great deal less,

If you're thinking of buying new terminals, Data Logic has some important news for you. Especially since there's been a bit of a stir in the business lately.

We have terminals that are comparable to IBM's 3178, have 3278 functionality, can be delivered in 30 days from now - and are 20% lower in price.

# a great deal more.

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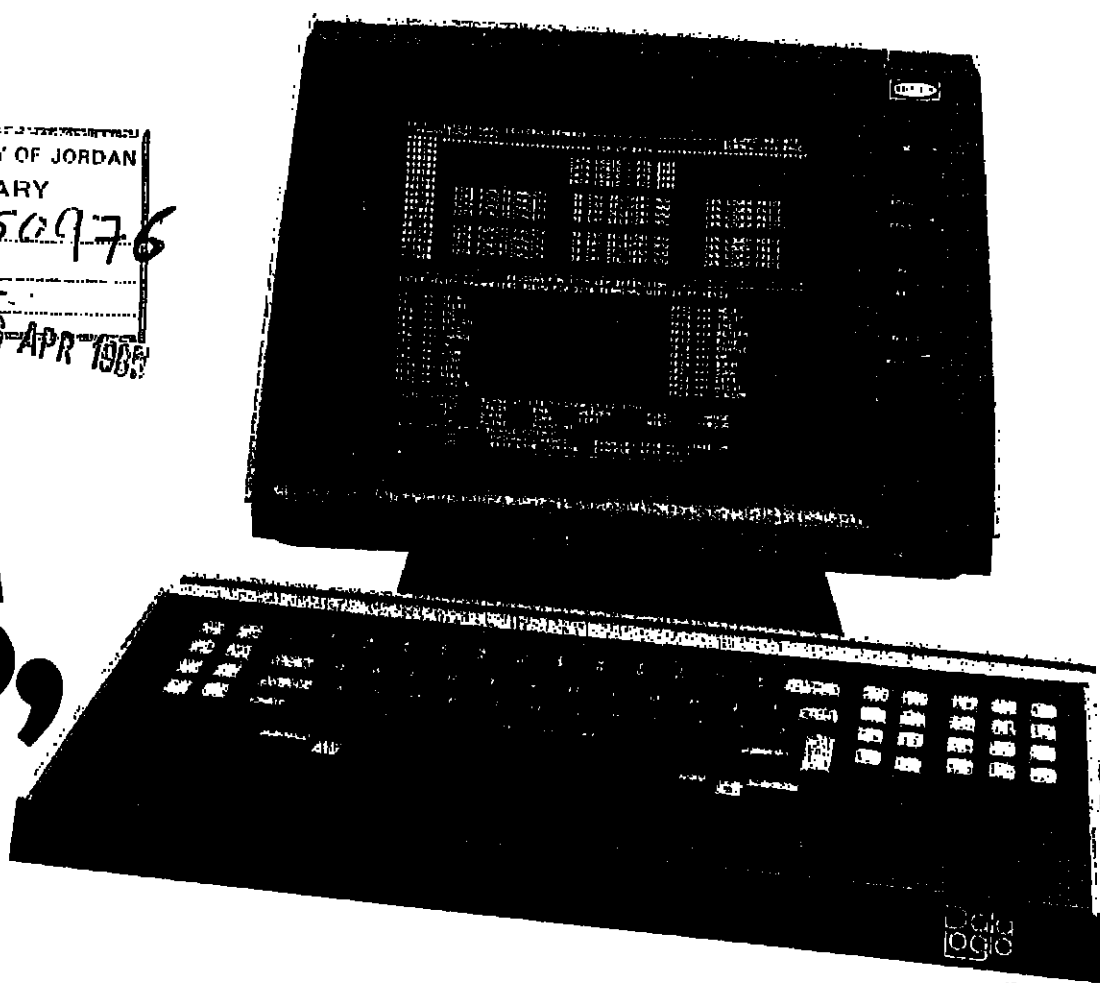
All Data Logic terminals are IBM-compatible, and can be installed by the customer. We offer a variety of maintenance options together with the highest quality customer support in both training and service.

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Company Address \_\_\_\_\_

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CW74





# Micro foes clash over CP/M

by George Black

RIVALRY between the two top micro systems software houses is becoming intense.

Digital Research, authors of the most popular system for basing applications on, CP/M, has been coming steadily more into direct competition with Microsoft whose MS-DOS operating system scored a major coup when it was adopted by IBM.

Claim and counterclaim have been flying through the air this week. Microsoft accused Digital of ejecting its delegate to a London seminar in full view of the assembly.

But Digital replied: "This isn't true. He was asked whether one of our representatives could attend its next public event and told no. He

was then taken quietly aside and asked to leave. Everyone else was at lunch at the time."

Microsoft's claim that ACT, the distributor of the top-selling Sirius micro, had stopped supporting CP/M-86, was challenged by Digital and flatly denied by ACT.

But Microsoft's UK general manager David Fraser commented: "I still don't think they are now shipping it. It's a question of how you interpret 'support'."

Microsoft says it has stopped selling its CP/M-86-based Basic interpreter and Pascal and Fortran compilers because Digital will not give the necessary technical support. But Digital's case is that it has had to launch its own Personal Basic executing Microsoft M-Basic code because Microsoft



FRASER... "How do you interpret support?"



BAILEY... "The battle hasn't been joined."

had been reluctant to implement M-Basic under CP/M-86.

Digital's European operations manager Paul Bailey said Personal would compete with M-Basic head-on and would be enhanced

with graphics in September.

Fraser said: "In the US CP/M has been pushed right out by MS-DOS and it's sliding in Europe too. So they are getting uptight and acrimonious about it."

Bailey answered: "They are saying the battle is over when it has not yet been joined. If they claim there will be only one operating system I am here to tell them they are wrong."

## Micro Focus may make a million

MICRO Focus stands to make £1 million more than expected from its share placing this week. Requests for the £1.55 shares outweighed the number available by five times. The price was later fixed at £2.40 — but even so the shares were three times oversubscribed.

Micro Focus was hoping to raise £2.1 million by selling 23% of its shares on the Unlisted Securities Market, a cheaper way of getting on the Stock Exchange than going for a full listing.

The new money is needed to back a push into the mainframe market and to install an office automation system. That system will be used to help run the business and to develop new products.

"We had hoped for a good mixture of small investors and big institutions and we got it," said financial executive Paul Kilduff. "We recognised many of the names of the private investors as people in the industry. The level of interest was very gratifying."

The price was set following postal bids. Dealing in the shares at the Stock Exchange was due to start yesterday (Wednesday).

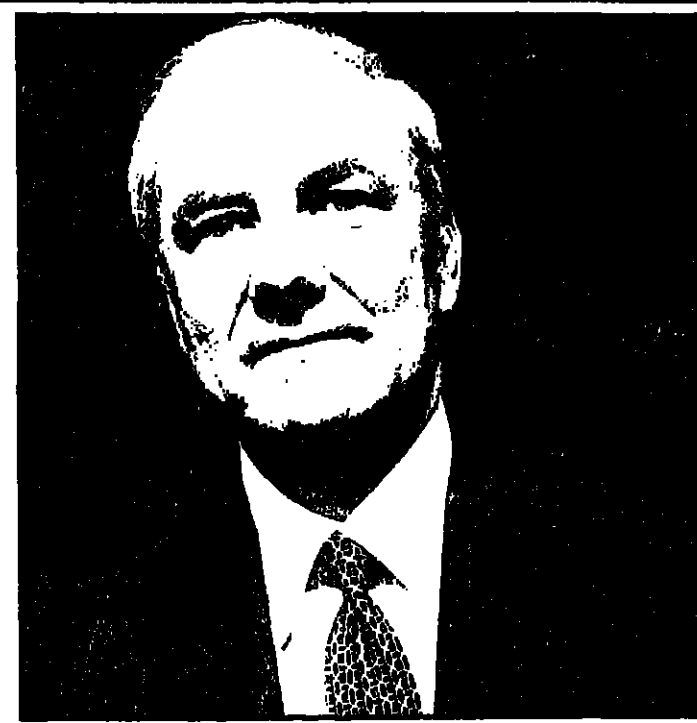
## Harris boss attacks the predatory Japanese

JAPAN was criticised last week for its "predatory practices" in technology markets by the president of Harris Corp, the US communications and information processing equipment manufacturer.

John Hartley, addressing the US Chamber of Commerce in London, pointed to the degree of subsidisation in Japan, particularly in research and development and exports, and the artificial value of the yen as threats to Western manufacturers.

But he also disagreed with the Reagan administration's stance on the export of US technology (see front page), which he called unrealistic.

Hartley, agreeing that R&D was the key to the future, said that the \$1.5 billion Harris Corp had recently joined a research co-operative in the US to develop technology, but that there would be no co-operation on marketing. Harris will spend about \$100 million of its own money on R&D this year, with a similar amount being spent on projects it is working on for the US government.



HARTLEY... Reagan's stance in exports "unrealistic".

As in the UK, US computer companies have trouble recruiting qualified researchers and designers. But Harris has hired in excess of 550 new college engineers this year in its annual "milk run", which Hartley said represented more than 1% of the graduate engineers in the US.

His own company, Hartley said, must do more in marketing its products. One-third of its sales are international, with Europe the most important market.

Hartley added his voice to those calling for a single multifunction desktop workstation which can handle text, voice and data.

# DoI tells users to set IT standards

by Donald Kennett

A BID to involve users in setting standards for information technology has been launched by the Department of Industry.

But the government wants to avoid putting any money into it, preferring to play its favourite role of catalyst by helping to set up a self-sufficient IT Users' Standards Association.

Government funding is expected to stop at the eight man-month feasibility study commissioned from consultant Keith Graham in March, with the possible addition of some advertising to attract members towards the end of the year.

From then on users will be expected to provide enough in subscription fees to fund a small secretariat and enough in personal involvement to sustain a useful level of standards-influencing activity.

Standards setting is currently dominated by suppliers, but it is users that stand to benefit most by

the existence of standards — particularly if they are good ones. There have been many calls from standards committees for users to involve themselves. But, as Graham points out, the cost of such involvement can be great and the motivation small.

Small users in particular lack comprehensive expertise and are unlikely to wield sufficient influence on their own to have any significant impact on how standards develop.

A standards association could provide a forum for users to exchange views and track developments in technology and standards, as well as to lobby collectively for what they want, Graham believes.

In his initial investigations, he has counted more than 30 users' groups of various kinds, such as the Telecommunications Managers' Association, the ICL 2900 Club and the IBM Computer Users' Association. "There are these fragmented groups of users,

but no across the board so board," he says. "The upside is rather better represented with groups like the Equipment Trade Association, the European Computer Manufacturers' Association."

He quotes a study presented to the French government which estimated that between 10% and 31% of users' costs were saved if standards were available in more areas of information technology.

Part of his brief is to investigate whether an appropriate standard could be set up within a group, such as the British Standards Society, which is an of the British Standards Institution designed for standards users than setters.

The study was proposed by a 10-member private sector committee set up to advise on speeding up the formal use of IT standards. The was backed by the National Computing Centre.

## The Irish move to a more lucrative London

by John Kavanagh

AN Irish software house has moved into London's West End because its home market is becoming saturated. At the same time the company, Systems Plus, is taking on new hardware because of the boardroom and trading problems of its main supplier, Vector Graphic.

"Digital Equipment micros will be our main thrust from now on," said managing director Robert Bailes. "Vector Graphic's troubles have caused us a lot of problems. They're really struggling."

Last week it was revealed that Vector had plunged to a \$1.3 million loss in the first nine months of its year, while president Fred Snow was axed after just 10 months.

Systems Plus has now become an official DEC microcomputer dealer. It is also considering the IBM Personal Computer and a UK machine.

The company was formed in the late Seventies and has 100 installations, including seven in the London area. Bailes said it had to look outside Northern Ireland because of the size of the market and amount of competition there.

"If you get 5% of the market in the UK it's worth more than 20%

of the market over there," he said. Bailes added that the company would still be able to take advantage of low business costs in Belfast. "Staff costs are half what they are here," he said.

Most of Systems Plus' Belfast staff come from the local Queen's University. The company specialises in database systems. It also hopes to get a lot of business with a package for golf clubs.

The company has 14 staff in Belfast and expects to have 12 in London this year.



BAILES... Has Vector problems.

## Former giant David is at the crossroads

by Ivan Berenyi

DAVID Computer GmbH of Stuttgart, successor to once phenomenally successful West German mini-maker DDC and the latest venture of former Kienzle salesman Peter David, is at the crossroads.

Claiming a backlog of 700 orders for its 16-bit Fairchild microchip-based David 203 office system, and a liquidity crisis brought on by delivery hold-ups with the long-gestating Fairchild 9445, it has been bailed out by its bankers through a DM8.8 million (£2.3m) rescue package. But simultaneously the bank put a controller in charge of the company, which reportedly led to managerial resignations.

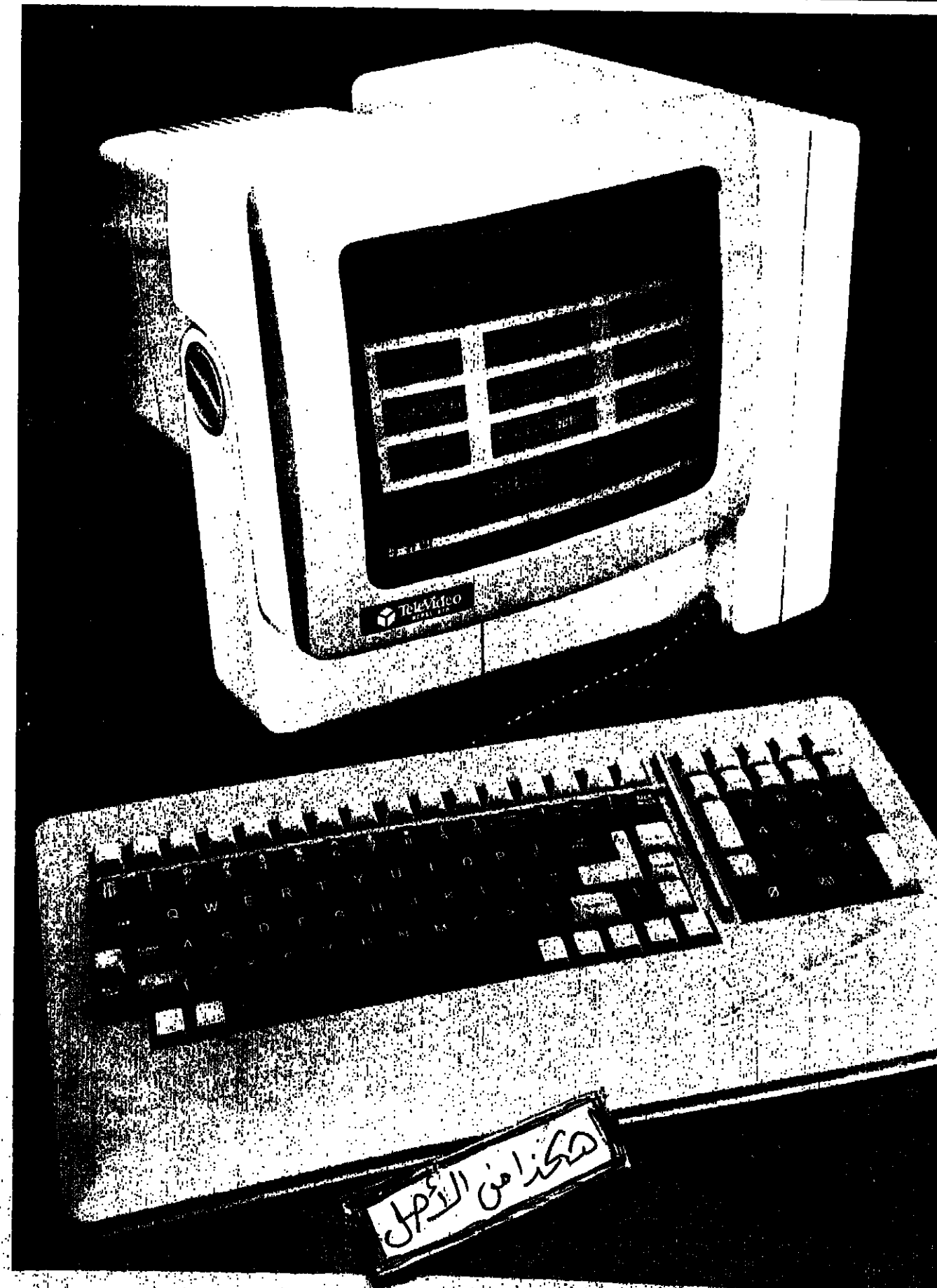
Exhibiting the 203 in Hannover for the second year in succession, the company promoted it as entirely its own development with fully integrated WDPF facilities and the first German microcomputer which does not necessitate phase-by-phase implementation.

but can fulfil all commercial software requirements immediately upon delivery in configurations ranging from DM16,000-50,000 (£5,000-£25,000).

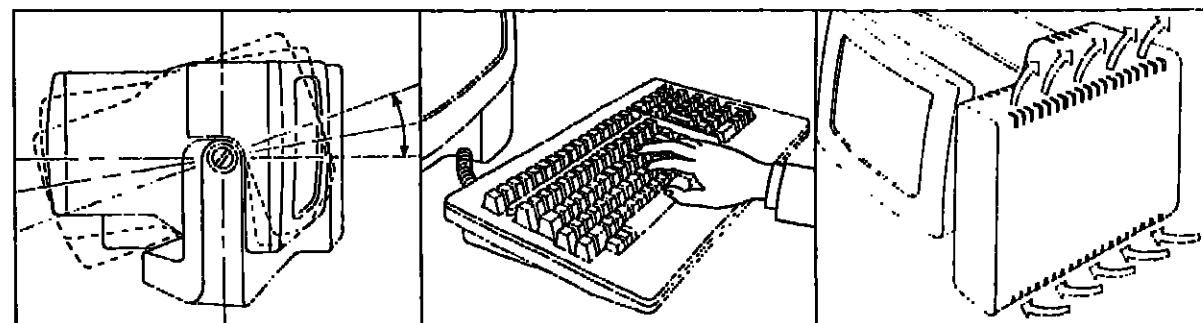
Barely a week prior to the Fair, David Computer announced the conclusion of a three-cornered deal, under which it was to provide a "special micro-based solution" to the needs of the 38,000-member carpenters' and cabinet-makers' association, BHKH.

But, while accepting the viability of the 203, it was all too little and too late for the bankers to give a carte blanche, apparently, since on examination of David Computer's books allegations of serious mismanagement ensued.

It transpired that a portion of the 200-plus existing installations were four times costlier. David 230s Data General Nova look-alike minis built around a special Bytornix kit by DDC — delivered to impatient 203 customers as a stop-gap measure.



## The new 970 from TeleVideo. Nothing else looks like it. Nothing else performs like it.



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## Blocked retailers hunt an opening

RETAIL giants are seeking a computer company to help them cut through a communications blockage.

The problem for about 30 large retail companies, including household names such as Tesco, Woolworth and Boots, is that a lack of standardised file transfer protocols is holding up direct transmission of trading data between them.

The companies have been working together since 1978 through the Article Number Association with the aim of eliminating paperwork in their transactions with each other.

Last October they published

years off," said Andrew Secretary-General of ANA. "There will be additional information time after that. The fit in with our time scale want to be able to communicate now."

The main task of the computer company will be on protocol conversion, also carry out other tasks media conversion and error checking. Companies would then batch all their messages and send them individually to their destinations.

The aim is to eliminate paperwork. "At Tesco 135,000 invoices each week



TESCO... One of the giants aiming to eliminate paper work.

formatting standards for electronic data exchange which have aroused interest from 250 companies so far, and 50 bilateral agreements for electronic data transmission have already been made.

Bilateral agreements for transmitting documents such as invoices, orders, and so on, are inefficient and the ANA wants to find a computer company to act as a central clearing house.

"International standards for file transfer protocols are about two

law they have to be retried seven years," said Director of Tesco Services, explaining of the problem.

The ANA is working to prepare the way for a time data transmission. It is also preparing which are not yet computer automation.

**July 4th 1983 will be Independent of America Day**



# Councils berate ICL late arrival

by John Kavanagh

ICL is at last on the right road with a local government system aimed at handling new legislation on rates and rents rebates.

The company's traditionally staunchest allies say its failure to deliver a working system on time has cost them extra work and long delays in getting out rates demands and rebates.

At the same time ICL's lambasted Dilis system for handling council's direct labour forces is at last coming right.

ICL was supposed to deliver the housing benefits system on April 25. This was delayed until Monday of last week — and in the meantime users were fuming over the extra work, claiming the system didn't work.

But the new version has saved ICL's blushes. "It has met its promise of supplying something

that works — with warts on," said Malcolm Temple, treasurer at Salisbury Council.

Councils and computer firms were given short notice of the new rules — but software house F International produced a working system on time with a consortium of eight authorities. Six are running the system on ICL 2900 computers in batch mode. An online version is expected in the summer.

"I don't like to knock ICL, but we've managed it and they haven't," said Mike Cheese, assistant treasurer at Babergh District Council, one of the F International consortium. "If the full system goes as well as the batch interim one we will be well satisfied."

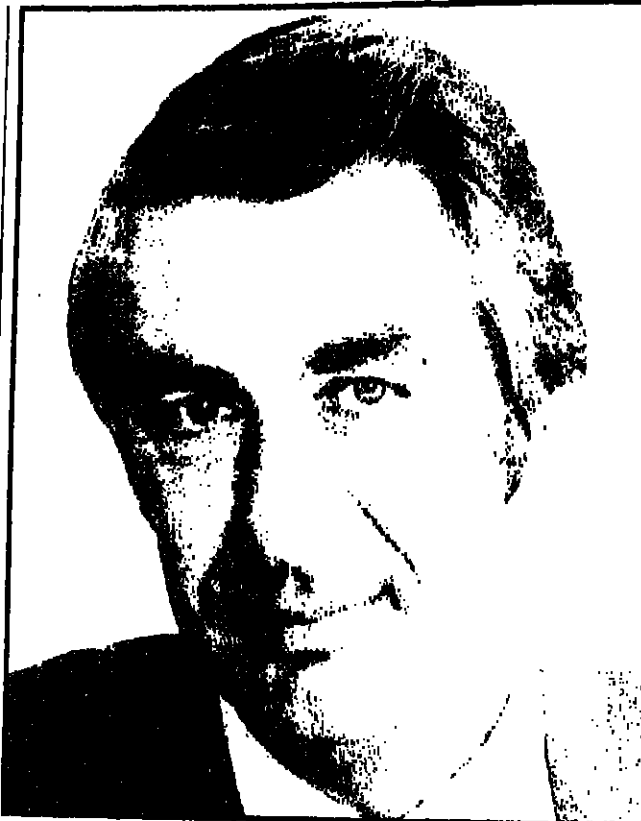
On the Dilis front users have welcomed the latest release, now on trials, but it is still not approved by the Chartered Institute of Pub-

lic Finance and Accountancy. ICL and CMC were nominated preferred suppliers by CIPFA — angering other firms, which said this hit their chances of winning business in a huge market.

But the "preferred supplier" tag backfired on ICL, for the company failed twice to get CIPFA approval for Dilis. A CIPFA statement on the latest release is expected late this month, but it is believed to be an interim release and full approval is not expected before the autumn.

"This release is being well received but it still doesn't give everything required," said CIPFA under-secretary Rod Aldridge.

Frank Baxendale, assistant treasurer at Lancashire County Council and chairman of the Dilis user group, said the new release was the best yet.



SIMPSON... "Simplest eight-bit to 16-bit upgrade costs \$1,890."

## Durango PCs will convert to 16-bits

by Philip Hunter

THE 1,000 UK users of the eight-bit Durango personal computer will not have to throw their kit away to convert to the new 16-bit IBM-compatible range. The California-based company claimed it was the first to offer complete software compatibility between its eight-bit and 16-bit micros when it announced the new Poppy range in the UK last week.

"The simplest eight-bit to 16-bit upgrade costs \$1,890 in the US," says company president Jim Simpson.

But the company is unlikely to be alone for long in offering software compatibility between eight-bit and 16-bit micros. ICL is one of several companies with an announcement in the pipeline, the PC2.

Like the Poppy, ICL's PC2 is expected to allow up to four screens to be linked up to the single processor.

The future success of the Poppy will depend on its applications development software, and on the new market for micros to be linked to IBM mainframes.

Simpson says the company is at

present considering four database management packages for implementation on the Poppy, including the popular dBase II.

And already 750 Poppys have been sold in the US as intelligent terminals linked to IBMs.

But Simpson says that the company has deliberately shunned the option of connecting up to local area networks (LANs). This, he says, is because neither IBM, which dominates the personal computer market, nor American Bell, which dominates the communications market for small machines, has accepted LANs.

"Ethernet, Wangnet and all the other nets have not become standards in any way," comments Simpson.

The Poppy will be distributed in the UK through a network of 30 dealers by Computer Ancillaries, at end user prices starting from about £3,500 for a two-disc single user system with 128K memory.

Computer Ancillaries already has its own IBM PC look alike on the market at the lower price of £1,995. It is the first British-built micro which supports IBM's MSDOS operating system.

## VDU giant to make peripherals

by Andrew Thomas

THE world's largest independent supplier of VDUs is to branch out. California-based TeleVideo plans to announce a letter-quality printer within six months, with a full range of other devices to follow, according to Northern European marketing director Pat Harvey.

And TeleVideo is stepping up its assault on the micro market. Following last month's announcement of new eight- and 16-bit micros, a new 280A-based portable will be available in the autumn.

"We're shipping over 4,000 units a month, not including the new TS803 and TS1603," says Harvey, "and by December, we'll be up to 20,000 computers a month — 100,000 for the year."

"We've spent half a million just tooling up for the injection mouldings for the cases. We had one machine, but it couldn't make the cases fast enough, so we bought another two."

The move into peripheral manufacture forms part of TeleVideo's plan to supply complete computer systems, and, although the daisy-wheel printer — which will be the first of the range — has been designed and built completely in-house, Harvey does not rule out the possibility of takeovers to fill out the product line.

"If you're buying from outside, you're giving some of your profit away," he says. "We're not interested in badge engineering. We'll either develop our own machines or buy the manufacturers."

And the TeleVideo expansion doesn't stop at new products. Founder and president Philip Hwang is considering going into chip manufacture, says Harvey.

"We need and want to be independent," he says. "We plan to spend 5% of revenue on R&D this year, but not on wing and a prayer stuff — we want to be at the volume end of the market. If 20 million people want it, we'll make it."

The new portable will compete with machines like the Osborne 1, being transportable rather than portable. A mains power supply will be needed to run the 25-lb. eight-bit machine. Defending the decision to stay with an eight-bit architecture, Harvey cited the vast array of CP/M software available and claimed that most users are not concerned with how a machine works.

## CABLE 83

Donald Kennett reports on a new telecomms conference

# US cable TV net to offer data links

DATA communication services are to be provided on a cable television network currently being installed in Boston in the US.

The network was described by the US broadcasting consultancy Kalba Bowen Associates at On-line's Cable 83 exhibition and conference in Wembley last week.

The 25-man firm has done design and market research work in cable, satellite and subscription television and cellular radio for the last 10 years and the Boston network, being built by Cablevision Systems, is its first project involving data links.

Consulting group manager Tom Lucke said the data communications plans had evolved from an initial proposal designed to make the franchise bid more attractive. The proposal was to include spare capacity on the network to give the city authorities free trunk links between offices. In the hot competition for franchises, US authorities have quite openly said that they would take into consideration what benefits the bidders could offer the community.

The Boston network design then became a four-cable system, two to carry 54 video channels each for residential subscribers, one to support trunk links for public institutions and another to do the

same for commercial companies.

The design also introduces a variation on the architectures familiar to UK observers, that of the hubbed tree and branch system. In this system, four or so interlinked tree-and-branch networks cover a franchise area, instead of just one, so that the data and voice carrier frequencies can be re-used several times within the same area.

Data channels capable of supporting links operating up to 19.2 Kbits-per-second will be provided on all four cables in the network, taking up to four channels in the video band on the residential service cables and also using frequencies below the video band. Access will be on a contention basis using the CSMA/CD (carrier-sense multiple-access with collision detection) scheme on which Xerox's Ethernet is based.

Switching between channels will be added next year when the numbers of users connected to the network justifies it. Installation started last autumn and about 1,000 are connected now.

Meanwhile, organisational users' first links will point-to-point data links and trunk digital voice links. The voice trunks run between PABXs or from users to independent common carriers, which compete with AT&T on

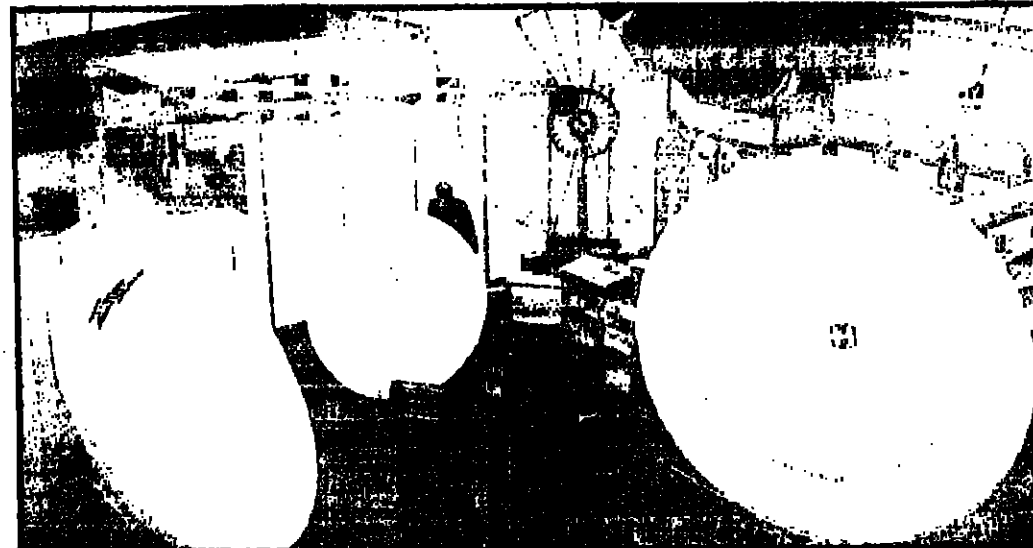
long distance call charges.

Kalba is also involved in evaluating bids for cable network franchises on behalf of the authorities in Saint Paul and Philadelphia.

Technology director Wes Vivian said that the Saint Paul system was required to support a population of at least 16,000 personal computers capable of communicating at up to 19.2 Kbps on a packet switched network and that so far at least one bidder has proposed a viable system. Saint Paul was an active centre of computing, he said, with the University of Minnesota putting in its own extensive computer network and manufacturers including Control Data, Cray Research, Amdahl and 3M.

Philadelphia was evaluating bids for four separate networks, all of which were required to have some provision for communications between microcomputers. One or two bidders had proposed provisions for packet switching and all proposed doing something about home computer users "later on", Vivian said.

All proposed to use the Jerrold Communicom cable network terminal, he added, which was a down-line loaded microprocessor with a packet assembling modem, to which a personal computer could be attached.



Dish antenna — British solution to the trans-Atlantic problem.

## BT dishes up British wisdom

SEVERAL companies clearly agree with the government's contention that cable and satellite systems complement each other.

Although On-line's event was aimed squarely at the cable systems market, the lower exhibition floor was dominated by the three-metre satellite antennae.

During the conference, British Telecom's assistant managing director for broadband services, Donald Wray, also emphasised that a variety of media such as microwave radio, satellites, coaxial cable and optical fibre cable were all involved in supporting broadband or wideband transmission for television.

Wray seized the opportunity to point out that the dish antenna that we all know and associate immediately with satellite commu-

nications was not the first or only possible instrument for handling the signals.

When the first trans-Atlantic satellite link was set up via Telstar in 1962, the dish antenna was the British solution to the problem. The other participants in the link — France and the US — used a cat's cradle of wires running between various different sized poles and concealed under a dome.

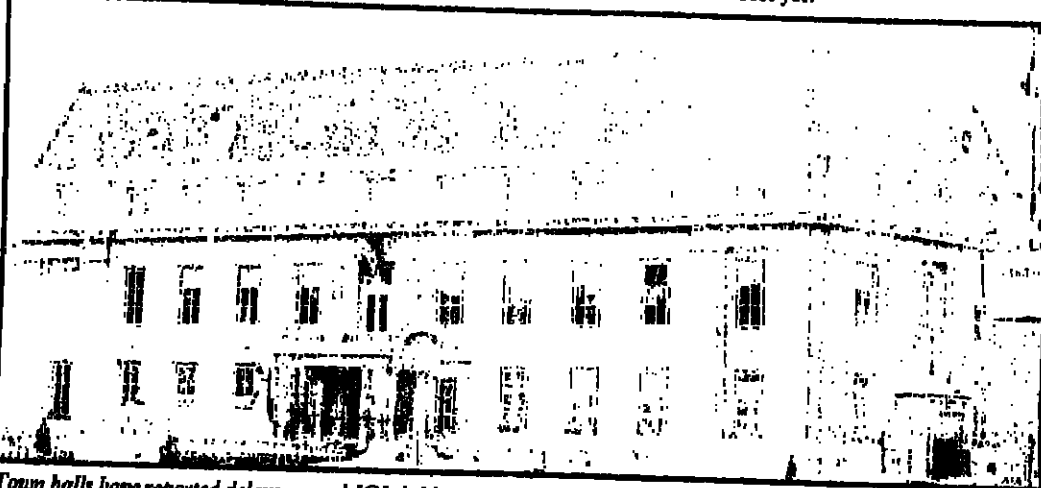
The point was to illustrate British Telecom's wisdom and foresight in these matters. In the current context this meant realising that BT had led the way in pointing out how demands for bandwidth in homes and offices would soon outstrip the capacity of the telephone line to satisfy and what was needed was a single integrated wideband network to de-

liver the full range of communications services.

In the new situation created by the government, it is impossible to know what national connections would be required between local cable networks, added, and the only way to for all possibilities quickly and reliably enough was to use satellite.

To that end, BT was already negotiating with Eutelsat and telcel to ensure capacity would be available in the near-term and planning to use Unisat — the satellite to be launched by the consortium of BT, British Aerospace GEC-Marconi — from 1986.

Cable 83 was claimed to be the first conference and exhibition Europe to concentrate on network issues. More than delegates attended.



Town halls have reported delays — and ICL is blamed.

## Plessey pips GEC to £10m deal

by Philip Hunter

PLESSEY has beaten GEC to the £10 million contract for a new computerised exchange to serve London's 25,000 telex subscribers.

But British Telecom says this will be the last contract for stored program control telex exchanges unless there is a surprise increase in the present total of 90,000 UK telex users.

BT's modernisation programme to replace UK telex exchanges was due for completion in 1990. But

competition from telex is likely to hot up in 1984 when BT makes a gateway available to allow terminals to link with the telex network from an ordinary telephone.

Plessey hoped more contracts would follow last month's London deal. It has already been beaten to the lion's share of BT's telex exchange replacements by GEC, with a £24 million contract to supply 10 smaller exchanges outside London, but had announced a new range of telex ex-

changes, the 8000 series.

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North Yorkshire ROOM TO GROW

## Personal computers? No thanks!

IF you have been worried lately about not being "computer literate," take heart. There are millions like you out there, and what's more a large percentage of them don't seem to care about computers as much as we might like to think.

As the use of personal microcomputers proliferates and seemingly develops into a galloping mass consumer market, independent market research organisations and some publishers outside of the specialised computer industry and trade media are also getting into the act. Their findings and conclusions about the personal computer revolution are particularly valuable because their studies are performed among groups of people representing a cross-section of the society rather than specific computer end-user groups.

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More importantly, when asked whether they were likely to buy a personal micro during the next

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At least 84% of the respondents expressed little or no interest in use of personal microcomputers in the home and only a slightly smaller percentage had the same attitude about their use for business. Among those who now own personal micros or have access to their use for non-business applications

by Bohdan Szaprowicz

year over 76% of the respondents did not think so. Of the remaining, only 10% thought it very likely that they may become micro owners.

However, the likelihood of purchasing a machine became greater over the next two years, but even in the longer run over 56% still did not think it likely that they would succumb to the temptation despite publicity blitzes.

The survey also revealed that almost 43% of those surveyed have operated a personal microcomputer and 25% of the businesses in which they worked had personal computers installed on the premises. Even so, 28% of the

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It seems despite all the hoopla, people are convinced that even the fastest micro can not beat the simplicity and cost/performance ratio of a simple card file index.

And who are all those sceptical and reluctant potential microcomputer users? Believe it or not, 90% are college educated, and 80% of them are employed in professional or managerial occupations. Their average household income is \$24,000 a year. Clearly they are among those who could probably afford to buy a personal microcomputer today and 48% of them are also in management.



CAUSLEY... Plans continued growth in sales and service centres.

## DEC brings mini network to UK

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DIGITAL Equipment's new mini network, which allows users to upgrade or develop fault tolerant systems easily, is now available in the UK.

The Vaxcluster system, it is the latest phase of DEC's Systems Interconnect Architecture, and enables users to interconnect combinations of up to 16 top-end Vax processors and HSC50 mass storage servers.

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stop people thinking we've come up with something to replace Ethernet," said DEC's Vax systems marketing manager David Neal. "Typically we would expect about three Vaxclusters in a company to be linked by Ethernet into a local area network and from there into wide area networking systems."

Vaxcluster interfaces with DECnet, Digital's networking architecture, as well as Ethernet.

## Data General Eclipses catch Ada

DATA General has brought in an Ada compiler using its MV Eclipse superminis as host processors.

DG's Ada implementation is based on Rolm's, announced last October, which was said to be the first to meet the American National Standards Institute (ANSI) standard formalised early

this year. It runs on the MV4000, MV8000 and MV10000 32-bit machines as well as Rolm's MSE800, a ruggedised Eclipse built under licence from DG. Validation tests are taking place at the US Defence Department's Ada Joint Program Office.

The announcement hots up the

race to get the realtime language, promoted by the DoD, up and running on a variety of hardware from mainframe down to micro.

Ada followed Cobol and Fortran into an elite group of officially acceptable languages and is widely tipped to become the standard vehicle for realtime application,

## 'Politicians in dark about technology'

by John Riley

ANALYSTS do not brief politicians properly about the effect of new technology on society, says a Euro-report published last week.

A basic weakness is that most studies only quantify the technical and economic impacts of new technology. When it comes to assessing the effect of new technology on society, however, studies are descriptive, making it "difficult to draw up a balance sheet of social advantages and costs."

The report, published by the International Organisation for Economic Co-operation and Development (OECD), suggests that social scientists tackling new technology assessments need to adapt somehow from batch to real time mode.

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"Assessing the Impact of Technology on Society. Organisation for Economic Co-operation and Development, 2 Rue André-Pascal, 75775 Paris, France. 80 pp.

## Safe aims high in Toronto

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LEICESTER-based Safe Computing has set up in North America. The new Canadian subsidiary is managed by Ken Jay, former head of Safe's UK factoring systems division.

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RULE... Looking for deal.

Philip Rule, UK chairman of Safe, said: "We are expected to turn over in North America at least \$500,000 in the financial year which began April 1983."

Intending that the Toronto office will be a basis for further expansion and will be appointing dealers in America.

Safe had a change in the situation of its ownership in last year after the company turned over to over £200 million in 1981-82, on a turnover of £1.1 million. As a result of the subsequent cash security company, Chubb, had a major stake in converted its loans to Safe's mixture of secured loan and redeemable preference shares.



# Councils berate ICL late arrival

by John Kavanagh  
I.C.L. is at last on the right road with a local government system aimed at handling new legislation on rates and rents rebates.

The company's traditionally staunch allies say its failure to deliver a working system on time has cost them extra work and long delays in getting out rates demands and rebates.

At the same time ICL's lambasted Dilis system for handling council's direct labour forces is at last coming right.

ICL was supposed to deliver the housing benefits system on April 25. This was delayed until Monday of last week and in the meantime users were fuming over the extra work, claiming the system didn't work.

But the new version has saved ICL's blushes. "It has met its promise of supplying something

that works - with warts on," said Malcolm Temple, treasurer at Salisbury Council.

Councils and computer firms were given short notice of the new rates system. Six are running the system on ICL 2900 computers in batch mode. An online version is expected in the summer.

"I don't like to knock ICL, but we've managed it and they haven't," said Mike Cheese, assistant treasurer at Babergh District Council, one of the 15 international consortium. "If the full system goes as well as the batch interim one we will be well satisfied."

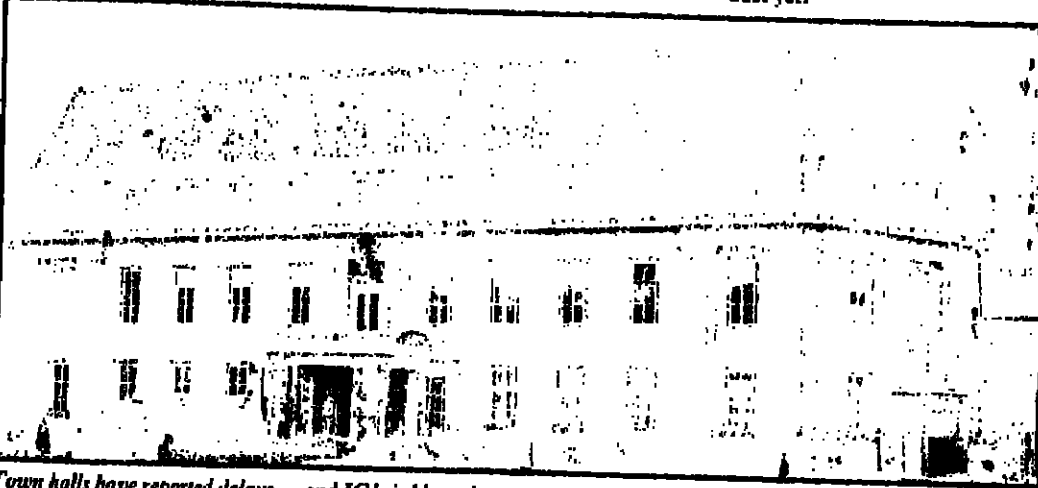
On the Dilis front users have welcomed the latest release, now on trial, but it is still not approved by the Chartered Institute of Pub-

lic Finance and Accountancy. ICL and CMC were nominated preferred suppliers by CIPFA - angering other firms, which said this hit their chances of winning business in a huge market.

But the "preferred supplier" tag backfired on ICL, for the company failed twice to get CIPFA approval for Dilis. A CIPFA statement on the latest release is expected late this month, but it is believed to be an interim release and full approval is not expected before the autumn.

"This release is being well received but it still doesn't give everything required," said CIPFA under-secretary Rod Aldridge.

Frank Baxendale, assistant treasurer at Lancashire County Council and chairman of the Dilis user group, said the new release was the best yet.



Town halls have reported delays - and ICL is blamed.

## Plessey pips GEC to £10m deal

by Philip Hunter  
PLESSEY has beaten GEC to the £10 million contract for a new computerised exchange to serve London's 25,000 telex subscribers.

But British Telecom says this will be the last contract for stored program control telex exchanges unless there is a surprise increase in the present total of 90,000 UK telex users.

BT's modernisation programme to replace UK telex exchanges was due for completion in 1990. But

competition from teletex is likely to hot up in 1984 when BT makes a gateway available to allow terminals to link with the telex network from an ordinary telephone.

Plessey hoped more contracts would follow last month's London deal. It has already been beaten to the lion's share of BT's telex exchange replacements by GEC, with a £24 million contract to supply 10 smaller exchanges outside London, but had announced a new range of telex ex-

changes, the 8000 series. New facilities, including the ability to send one message to many destinations with just one call, were enough to win BT's favour for the London exchange.

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However, the likelihood of purchasing a machine does seem greater over the next two years but even in the longer run over 56% still did not think it likely that they would succumb to the temptation despite publicity blitzes.

The survey also revealed that almost 43% of those surveyed have operated a personal microcomputer and 25% of the businesses in which they worked had personal computers installed on the premises. Even so, 28% of the re-

spondents would not bother to take a personal microcomputer home assuming they had access and permission to do so.

At least 34% of the respondents expressed little or no interest in use of personal microcomputers in the home and only a slightly smaller percentage had the same attitude about their use for business. Among those who now own personal micro or have access to their use for non-business applications

almost 27% cite hobbies and games as the most common use. Personal money management is almost as popular an application mentioned by 26% of micro users but video games are specifically mentioned by another 24% of that lot.

Other reports from the consumer electronics field suggest that some personal microcomputer models are almost exclusively or 90% used for playing games.

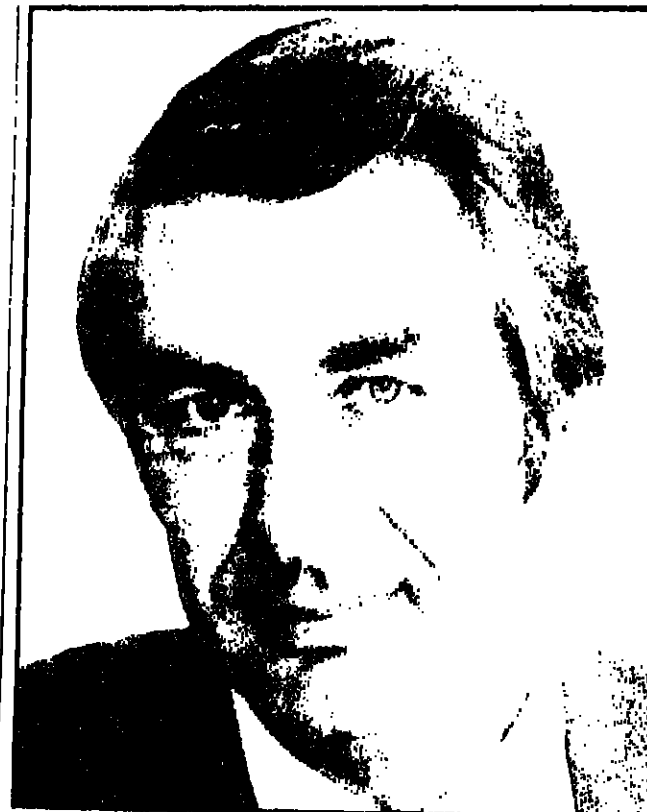
Among other applications in the home cited, most frequently were just plain programming (23%) which suggests that a significant group is basically that of professional programmers. Investment management and other applications

scored 23% on par with programming. Word processing was next with 22% mentions, self-education got 21%, household management 17%, child education also 17%, while use of the personal microcomputer as a remote terminal connecting the user to another computer system was cited 13% of the times.

Like maintenance, an application heavily touted by many personal computer suppliers did not do so well. Those who maintain their Christmas card addresses or are converting their little diary entries into their systems are definitely in the minority and this application was cited by only 13% of the users.

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SIMPSON... "Simplest eight-bit to 16-bit upgrade costs \$1,890."

## Durango PCs will convert to 16-bits

by Philip Hunter

THE 1,000 UK users of the eight-bit Durango personal computer will not have to throw their kit away to convert to the new 16-bit IBM-compatible range. The California-based company claimed it was the first to offer complete software compatibility between its eight-bit and 16-bit micros when it announced the new Poppy range in the UK last week.

"The simplest eight-bit to 16-bit upgrade costs \$1,890 in the US," says company president Jim Simpson.

But the company is unlikely to be alone for long in offering software compatibility between eight-bit and 16-bit micros. ICL is one of several companies with an announcement in the pipeline, the PC2.

Like the Poppy, ICL's PC2 is expected to allow up to four screens to be linked up to the single processor.

The future success of the Poppy will depend on its applications development software, and on the new market for micros to be linked to IBM mainframes.

Simpson says the company is at present considering four database management packages for implementation on the Poppy, including the popular dBase II.

And already 750 Poppys have been sold in the US as intelligent terminals linked to IBMs.

But Simpson says that the company has deliberately shunned the option of connecting up to local area networks (LANs). This, he says, is because neither IBM, which dominates the personal computer market, nor American Bell, which dominates the communications market for small machines, has accepted LANs.

"Ethernet, Wangnet and all the other nets have not become standards in any way," comments Simpson.

The Poppy will be distributed in the UK through a network of 30 dealers by Computer Ancillaries, at end user prices starting from about £3,500 for a two-disc single user system with 128K memory.

Computer Ancillaries already has its own IBM PC look alike on the market at the lower price of £1,995. It is the first British-built micro which supports IBM's MSDOS operating system.

## VDU giant to make peripherals

by Andrew Thomas

THE world's largest independent supplier of VDUs is to branch out, California-based TeleVideo plans to announce a letter-quality printer within six months, with a full range of other devices to follow, according to Northwestern European marketing director Pat Harvey.

And TeleVideo is stepping up its assault on the micro market. Following last month's announcement of new eight- and 16-bit micros, a new Z80A-based portable will be available in the autumn.

"We're shipping over 4,000 units a month, not including the new TS803 and TS1603," says Harvey, "and by December, we'll be up to 20,000 computers a month - 100,000 for the year."

"We've spent half a million just tooling up for the injection mouldings for the cases. We had one machine, but it couldn't make the cases fast enough, so we bought another two."

The move into peripheral manufacture forms part of TeleVideo's plan to supply complete computer systems, and, although the daisy-wheel printer - which will be the first of the range - has been designed and built completely in-house, Harvey does not rule out the possibility of takeovers to fill out the product line.

"If you're buying from outside, you're giving some of your profit away," he says. "We're not interested in badge engineering. We'll either develop our own machines or buy the manufacturers."

And the TeleVideo expansion doesn't stop at new products. Founder and president Philip Hwang is considering going into chip manufacture, says Harvey.

"We need and want to be independent," he says. "We plan to spend 5% of revenue on R&D this year, but not on wing and a prayer stuff. We want to be at the volume end of the market. If 20 million people want it, we'll make it."

The new portable will compete with machines like the Osborne 1, being transportable rather than portable. A mains power supply will be needed to run the 25lb eight-bit machine. Defending the decision to stay with an eight-bit architecture, Harvey cited the vast array of CP/M software available and claimed that most users are not concerned with how a machine works.

## CABLE 83

Donald Kennett reports on a new telecomms conference

# US cable TV net to offer data links

DATA communication services are to be provided on a cable television network currently being installed in Boston in the US.

The network was described by the US broadcasting consultancy Kalba Bowen Associates at On-line's Cable 83 exhibition and conference in Wembley last week.

The 25-man firm has done design and market research work in cable, satellite and subscription television and cellular radio for the last 10 years and the Boston network, being built by Cablevision Systems, is its first project involving data links.

Consulting group manager Tom Lucke said the data communications plans had evolved from an initial proposal designed to make the franchise bid more attractive. The proposal was to include spare capacity on the network to give the city authorities free trunk links between offices. In the hot competition for franchises, US authorities have quite openly said that they would take into consideration what benefits the bidders could offer the community.

The Boston network design then became a four-cable system, two to carry 54 video channels each for residential subscribers, one to support trunk links for public institutions and another to do the

same for commercial companies.

The design also introduces a variation on the architectures familiar to UK observers, that of the hubbed tree and branch system. In this system, four or so interlinked tree-and-branch networks cover a franchise area, instead of just one, so that the data and voice carrier frequencies can be re-used several times within the same area.

Data channels capable of supporting links operating up to 19.2 Kbps per second will be provided on all four cables in the network, taking up to four channels in the video band on the residential service cables and also using frequencies below the video band.

Access will be on a contention basis using the CSMA/CD (carrier-sense multiple-access with collision detection) scheme on which Xerox's Ethernet is based.

Switching between channels will be added next year when the numbers of users connected to the network justifies it. Installation started last autumn and about 1,000 are connected now.

Meanwhile, organisational users' first links will point-to-point data links and trunk digital voice links. The voice trunks run between PABXs or from users to independent common carriers, which compete with AT&T on

long distance call charges.

Kalba is also involved in evaluating bids for cable network franchises on behalf of the authorities in Saint Paul and Philadelphia.

Technology director Wes Vivian said that the Saint Paul system was required to support a population of at least 16,000 personal computers capable of communicating at up to 19.2 Kbps on a packet switched network and that so far at least one bidder has proposed a viable system.

Saint Paul was an active centre of computing, he said, with the University of Minnesota putting in its own extensive computer network and manufacturers including Control Data, Cray Research, Amdahl and 3M.

Philadelphia was evaluating bids for four separate networks, all of which were required to have some provision for communications between microcomputers. One or two bidders had proposed provisions for packet switching and all proposed doing something about home computer users "later on", Vivian said.

All proposed to use the Jerrold Communicom cable network terminal, he added, which was a down-line loaded microprocessor with a packet assembling modem, to which a personal computer could be attached.



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# Microdata plant creates 300 jobs

by Nuala Moran

THE UK subsidiary of American-owned computer company Microdata, formerly CMC, has announced a £10 million investment in a research and development and manufacturing plant which will create 300 jobs. These will be for systems engineers and electronic test specialists. Jerry Causley, managing director, also announced plans for continued growth in the sales and service centres in Belfast, Birmingham, Bristol, Dublin, Edinburgh, Glasgow, Manchester, Dunstable and Wakefield.

The company is expanding in Europe too. Within the last 12 months subsidiaries have started trading in Germany and Switzerland and subsidiaries are being

established in eight more European countries. The UK manufacturing facility will be the source for most of the product requirements of these outlets.

Microdata also announced record profits of £6.8 million, up from £1.8 million. Sales jumped 55% to reach £35 million. At the same time according to Causley, "Exports of UK-built minicomputers from the Hemel Hempstead manufacturing plant rose by 80% to over £6 million, and this included £1.2 million of exports to the US."

The British plant is one of three manufacturing centres for Microdata.

Prospects for 1983 look good, with deliveries of the Reality, Series 8000 and the Sequoia 32-bit super minicomputers up by over

50% and a 23% increase in orders to £13.5 million compared to the same quarter in 1982.

Investment in new technology includes work on a natural language, artificial intelligence type interface for data bases called Supernatural. Research in the UK is being carried out in conjunction with Microdata engineers based in Irvine California. More than £6 million has so far been spent on the package, which is expected to be available in the UK within the next 12 months.

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## MICRO NEWS

## Cut-price local area network

CHIP maker Intel and computer builder NCR have put their heads together to bring out a cut-price local area network (LAN) called Miran - for mid-range local area networks - is intended to fill a price-performance gap while complementing the up-market Ethernet also sponsored by Intel.

The design of Miran is based on the same media access techniques as the 10 Mbit per second Ethernet, but tuned to operate at 1 Mbit per second and to come in at around one-fifth the price of Ethernet. Intel's contribution will be to develop variants of its 82586 VLSI controller chip aimed at the lower speed, lower cost LANs.

The 82586 is presently being sampled, says Intel vice-chairman Robert Noyce, and is aimed at Ethernet and its variant adopted for a standard by the Institute of Electrical and Electronic Engineers.

NCR's part in the project was in the design of the transceiver. Its intention is to make Miran an "open interconnection" with the necessary information to implement a Miran interface.

# Micro you can carry anywhere

by Andrew Thomas

PORTABLE computers look like being one of this year's big talking points - but what is portability?

A Cray 1 is portable in the strictest sense of the word - you can move it around in a truck and use it where there happens to be a three-phase power supply and an air-conditioned environment.

Some so-called portable micros are little better than mainframes when it comes to moving them around. They still need mains power, and few have non-volatile memory or battery backed-up RAM. In many cases, the portable micro is simply a desk-top machine with a carrying handle and a free Charles Atlas course to enable you to pick it up.

A truly portable computer should be able to run on aircraft, boats and in the middle of fields. It should be totally self-contained and weigh as little as possible.

The machines which fit this category and can truly be called business tools can be numbered on the fingers of one hand.

So the arrival of a 16-bit, nine-pound micro capable of running for eight hours on its internal power pack can only be welcomed. And if it should also be IBM PC compatible, so much the better.

The Gavilan is all of these things. The Californian company which bears the same name as its first product was formed in early 1982, and has since raised \$8.5 million of venture capital. Despite



FERNANDEZ... "We designed the architecture before we built the house."

having four ex-Zilog men in its upper echelons, Gavilan has gone for the Intel 8088 chip for the portable, which runs standard MS/DOS plus development systems for both Basic and Pascal.

Applications software is available either on diskette or plug-in modules, and covers word processing, spreadsheets, communications and mail, forms processing, and a diary system.

The main unit of the Gavilan is 11in square and 2.5in thick, and features eight lines of 66 characters, liquid crystal display and 80 Kbytes of mainstore expandable by 32K increments to a maximum of 336K. An optional correspondence quality printer can be used as a standalone unit or attached to the main unit, adding another five inches to its depth.

First shipments will start in November, and the machine is expected to be in full production by the end of the year.

Software for the Gavilan was designed first, and the hardware was built around it.

Company president Manny Fernandez explains why: "We designed a completely integrated system built around the software. We designed the architecture before we built the house."

## Cifer 16-bit takes 68000/Unix route

by Nuala Moran

CIFER has found the 68000/Unix route for 16-bit microcomputers.

The 16-bit board is an add-on option to existing Cifer micros, which means it can be factory fitted as an option or retrofitted to any Cifer Series 1 with an IEEE 488 interface.

The 68000 board, with a minimum of 256K RAM adds to the present multi-processor

system, which has Z80As handling floppy disc control, and the video screen and keyboard. It is possible to add another Z80A to handle high resolution graphics. The processors are interconnected by a bus based on the international standard IEEE 488.

"Cifer's use of a modular approach means a buyer can do an easy upgrade from an eight-bit to a 16-bit," said marketing manager Peter Readman. "However, changeover to a 16-bit doesn't mean a loss of the eight-bit capability. It also means users still have access to application software that has been written for CP/M."

Manufacturing capacity has been doubled at Cifer's Melksham factory, at a cost of £30,000.

Cifer announced record results for the year ended September 1982. Turnover almost doubled from £2.73 million to £5.26 million. Profits were up from £248,000 to £840,000, with £400,000 going in to capital investment.

Managing director Terry Cosgrave said: "The company's position as a pre-eminent force among British terminal and microcomputer manufacturers is reinforced by these results, and current investment strategies will ensure that this position is further strengthened." Turnover for 1983 is on target for £8.5 million.



COSGRAVE... Reinforced.

## Insure your own micro

by Nuala Moran

INSURANCE broker Graham Brown and Co has introduced a scheme to cover personal computers and peripherals in the home, in educational establishments and while in temporary use at the office.

The policy provides an all risks cover against internal breakdown and accidental loss or damage, including damage during transit. It costs £7.50 a year to insure a system worth up to £100, and increases according to the value of the system. For a £500 system the annual cost is £15. Policies cannot be taken out on any equipment more than two years old.

Chris Bower, a director of Graham Brown said: "If the price of a computer drops into a lower price band than the price of the policy will fall too."

By the middle of this year 50% of all personal computers in the UK will be beyond the protection of the manufacturer's guarantee.

Bower said: "There are almost a million personal computers in use in this country today. In a rapidly expanding market such as this, with another million computer expected to be sold this year, manufacturers have little incentive to offer extended guarantees."

If an insured computer needs to be repaired the owner can take it to the engineer of his choice and then forward the bill to the insurance company. In the case of repair being impossible due to obsolescence the owner will receive the write-off value of the machine.

Bower added: "So far there has been a slow response from personal computer owners to this scheme. This is probably because the majority of machines are still under the manufacturers' guarantees, and people are not aware of the cost of repairs. However, we have also circulated dealers and have had a strong response from them asking for information to display in their shops."

## SOFTWARE FILE

# Microsoft enters the mouse race

MICROSOFT is following Apple and VisiCorp into the brave new world of mice. The US authors of the MS-DOS operating system have announced an electronic cursor tracking device similar to that which received a flood of publicity when launched by Apple for its high-powered 16-bit Lisa micro.

And Microsoft has accepted as definitive the term mouse which Apple coined for describing its pointer.

The Microsoft version, which has two control buttons instead of Lisa's one, and can operate on any flat surface, was introduced to OEMs last week at a London seminar, presided over by chairman Bill Gates.

The company's view is that personal computers are moving steadily towards a graphics orientation, with application progress using the mouse instead of a keyboard as the primary user interface.

It has chosen the mouse rather

than a digitiser, light pen or track ball because it thinks it both faster and more accurate. The IBM-PC version, priced at \$195, will be available at the end of the month and other machines will be able to offer it from June.

First application program to be issued with it is the new Multi-Tool Word, a word processing business package. Among the features which Microsoft claims make it the simplest and most powerful tool of its kind is an "undo" command giving novices confidence in the reversibility of their instructions if they make a mistake.

The individual workstation is the largest computing market and requires the greatest innovation to maximise its productivity, Gates told delegates.

Software companies, to be successful, needed not only to

innovate but to sell at least 100,000 units per package worldwide, he said. The spread of the 16-bit machine had been very rapid - Apple 11's 55,000 users was a very small number compared to what was happening in the 16-bit world.

And this was leading to the emergence of standards. The "biggest three" - IBM, Tandy and Apple - in micro world had now all acknowledged the importance of standards.

"This means there are now not so many niches to compete in," he argued. Asked about the future he said: "There should be as many operating systems as there are record player formats."

Microsoft does not intend to attack the expanding "vertical" (industry-specific) markets, but envisages a great variety of software firms using its tools to exploit those fields.

Software File is compiled by George Black.



GATES... Individual workstation is the largest computing market.

## Micro Focus set to run RIMS around Britain

MICRO Focus has reached an agreement in the US with ISR, authors of the RIMS/MPG application program generator, which could lead to the software development tool being installed on a range of micros.

Micro Focus isn't actually going to distribute RIMS, but, in the words of marketing manager Peter Hewitt, wants to act as a "catalyst" to make such software available in the new range of 16-bit machines.

The deal, aimed primarily at the OEM market, is the first fruit of a set of talks Micro Focus is holding with several software houses which have developed productivity aids.



RODWAY... Best solution.

## Improved SDS is on the way

AN IMPROVED and more user-friendly version of SDS, Software Sciences' much-acclaimed development tool, will be issued next year. Software technical director David Rodway said: "Next year's model is already a long way down the production line."

SDS was found by a recent government report to be "the best solution available in the UK today for a software development database". SDS is expected to be used during the Mchapee project, a collaborative venture between SS, SPL, SDL and TCL to develop an Ada and C++ environment over the next 4 1/2 years.

Rodway said: "Software Sciences intended to use intelligent knowledge-based systems for assisting design-checking."

## Codewriter plans for Commodore

DYNATECH Microsoftware is on the verge of a deal with Commodore to put its Codewriter program generator on its Series 8000 and 64 micros. Talks had reached "an advanced stage" this week in the US, according to John Marjoribanks, of the firm's UK office.

The Guernsey-headquartered firm wants Commodore to adopt the product, which has also been made available on IBM's PC and will be brought to the Sirius/Victor machine in the near future. A version to run under the CP/M operating system from Digital Research is being developed for a launch during June.

The micro software organisation is a subsidiary of Dynatech Corp of Boston.

The market for micro generators is hotting up, with the dBase-11 front-end Autocode from Stemmco gaining a foothold.

Autocode has achieved 400 sales in the US since its introduction.

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CRAY Research is nothing if not eclectic. It isn't building one super computer, it's building two. When John Carlson told the H & Q technology conference that Cray Research was currently investing in two separate research projects.

According to Carlson, the first Cray 2 will be delivered to a customer next year, and the first X-MP machine will be delivered in the last quarter of this year.

The Cray 2 is a vector processor designed and built by Seymour Cray. It is the non-compatible successor to the 100 mips Cray 1, and has mips equivalent speed of 600 to 1,200. The X-MP, designed by Steve Chan who is Seymour Cray's successor within the company, is a Cray 1 compatible computer which runs at speeds between 200 and 400 mips.

According to Carlson, the company will invest about \$150 million fast enough to achieve the quantity of Cray 2s that Seymour Cray will want to produce. "We will be looking for in his next machine."

According to Carlson, there is now a user base of 50 Cray machines in the world, many of them in Europe and Japan. This year Cray Research hopes to deliver 16 Cray machines, four of them to France.

By early next year CR will be delivering the XMP at the rate of one each month. If Carlson achieves those deliveries he may very well beat the analysts' forecasts of turnover of \$175 million and profits of \$25.9 million for 1983.



**NATIONAL Semiconductor**, America's number two independent semiconductor manufacturer, had a bad year last year. The company lost \$10.7 million on turnover of \$1.1 billion and this year the analysts are forecasting losses of \$21.6 million on turnover of \$1.2 billion.

Executive vice-president, John Finch, went a long way to confirm gloomy predictions when he told the planners that in Europe the semiconductor market would stay depressed. The NaSem results.

He blamed much of the poor performance in Europe on the agency translation of weak European money into a strong dollar, which wasn't the only problem.

While making optimistic noises about the semiconductor market in general and noting that the 16-bit microprocessor market in 1988 would be worth \$2.3 billion in turnover, Finch also dropped the little bombshell that the market would be getting into the 256K DRAM market by supplying Oki Data chips. The first of the Japanese 256K DRAMs would be available.

Last year NatSemi closed down its Santiago production plant of 35 wholly owned subsidiary National Advanced Systems at a cost of \$9 million. Finch said that NatSemi had made the decision to close the plant after Hitachi entered up with a competitive product on NAsS' own machine. In Europe, NAsS' outsold Aradiah Corp., the original IBM plug com-


ponent in the first quarter of 1984, and the 256K EPROM would follow in the second quarter next year.

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## Olivetti

**SALES** at British Olivetti are expected to be up 20 per cent to £70 million for the year ending December 1982. Due to a printing error, the figure was quoted as £40 million in last week's issue.

WHEN Bill Parry says that artificial intelligence and expert systems are the way of the future there are three good reasons for listening to what he says. First of all he is the man who signed the order that started the programming language Ada into existence. He did that when he was secretary of the US Department of Defence, a post which gave him access to some of the most advanced computer research in the world, which is the second reason why he is worth hearing.

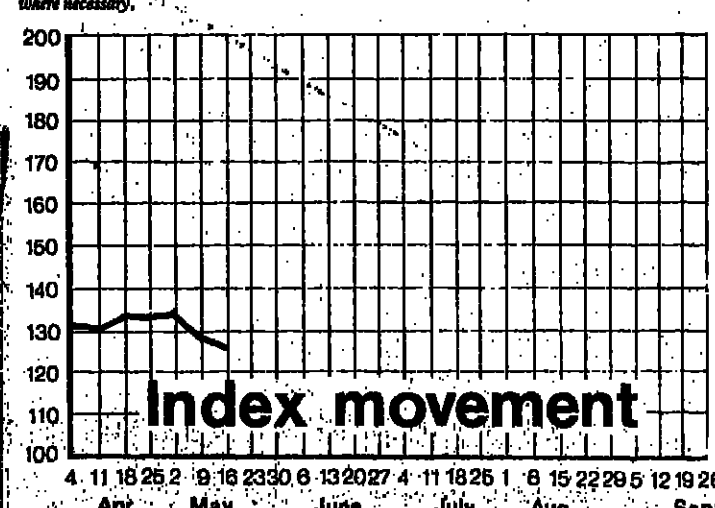


The first of the companies to speak to investors was Cognitive Systems Inc. This company was set up three years ago by Roger Schank, chairman of Yale University's computer science department. The objective was to commercialise artificial intelligence research through the development of customised natural language database interfaces and advisory ex-



*The shares table, which is specially compiled for Computer Weekly, shows selected computer companies that reflect the state of the computer industry.*

The table shows the closing prices in London on Friday and in America on Thursday. The Share Index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted



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**OLSEN**... Streamlining the marketing organisation.

**BEING** the second biggest computer company in the world has not discouraged Digital Equipment from appearing among the winners, even if the financial story from the number two didn't have quite its usual glow.

In the wake of a slowdown in profits in the second quarter, the company reported third quarter ended March 30, profits of \$79.7 million, against profits of 107.5 million for the third quarter of 1982.

Turnover rose 10% on the same period in 1982, to \$1.094 million compared with \$999.2 million.

All this gave DEC finance vice-president Al Mullin and his team of investor relations managers a good opportunity to add some silver linings to the otherwise dark

of production, which is more than six months behind orders in some cases if the UK is anything to go by, indicate that DEC is establishing a winning position in the lower end of the market despite late arrival there.

Steinkrauss also told

NBI, one of Hambrecht's real firms, suddenly came unstuck last quarter. NBI's Thomas Kavanagh explained that most of the loss had hit the company because of a change in the commission plan for his sales force. He made no mention of the loss of the Case dealership in the UK, which some commentators feel had more than a passing bearing on the company's situation.

The loss in the first quarter, which came to \$3.5 million, certainly took investors by surprise and NBI stock fell to \$19.5 from a high of \$50.

Undeterred by the events of the first quarter, which included a non-related attitude by the salesforce, who were focusing too strongly on educating customers and not on selling, Kavanagh was still full of optimism for the future. He described the business as insulated from the need for more cash for one to two years, and he said that the banks had provided a \$100 million line of credit to back up the \$40 million in cash and \$80 million in working capital the company was carrying on the books.

Kavanagh conceded that there had been some customer deferrals

distribution of the NBI system and backed out of the deal with an almost £1 million write-off when the company discovered that the communications software for the various products would not work.

This event, which led to a return payment to Case of about £750,000, and to the setting up by NBI of its own distribution system in the UK, went largely unremarked in the press.

NBI has grown from turnover of \$32.9 million in 1980, to turnover of \$7.6 million in 1981 and almost doubled again to \$100 million in 1982.

According to Mark Steinkrauss, DEC's investor relations manager, one of the reasons for the slowdown in profits was that the company had some delays in getting production of the personal micros fully ramped up, and there was also a shortage of software for the top-end micro the Profes-

That situation was now ended, and the calculators in the audience flashed as Steinkrauss revealed that DEC had shipped 16,000 personal micros in the first three months of the year, and expected to ship about 2,000 a week later in August.

What this means to the assembled investors is that in one year flat DEC will have shipped well over \$100 million worth of small micros from a range which, unlike IBM's, is internally and upwardly compatible.

The battle between the two giants, which is normally confined to the upper end of the DEC range, was initiated by IBM at the bottom

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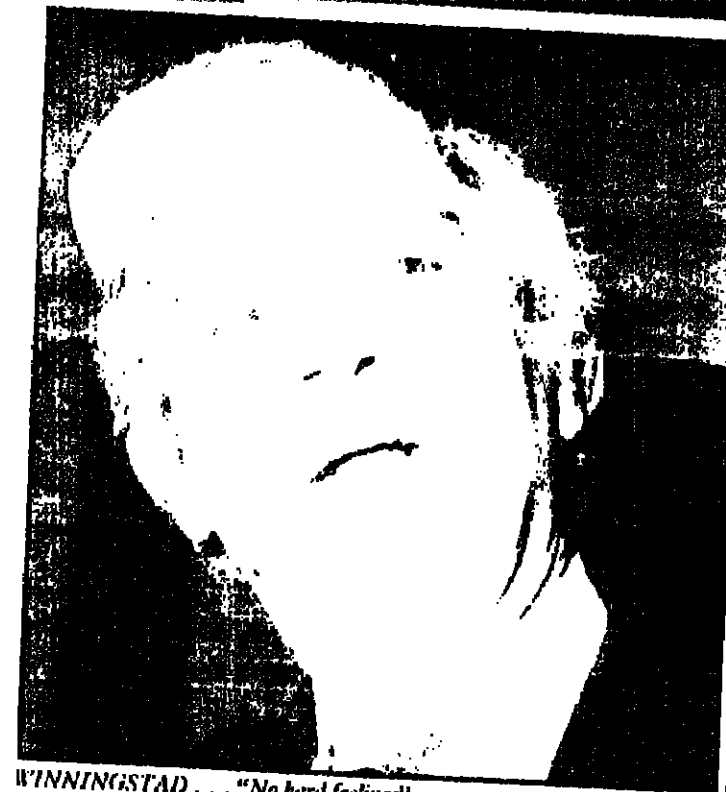
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WINNINGSTAD... "No hard feelings"

## Floating along on a delicate balance...

ONE of the coziest niches in the computer industry is filled by the US company Floating Point Systems, which makes array processors to "coke up" minicomputers for scientific computation. Floating Point has no serious competitor in the market, and relies on keeping a delicate relationship with both the makers of the computers that the processors bolt on to, and with systems houses such as CAP that develop complete packages of hardware and software for scientific applications.

by Philip Hunter

No wonder, then, that Norman Winningsstad, chairman of Floating Point, has no intention of branching out and making complete computer systems. This might offend companies like DEC and IBM whose salesmen at present recommend Floating Point processors to their customers. After all, IBM itself once threatened to make floating point processors to bolt on to minicomputers for the long, tedious mathematical calculations needed for signal processing, prospecting for oil and other technical applications. The Floating Point story began in 1969 when Data General introduced the first 16-bit minicomputer. Realtime scientific computation could now take place in the confined space of a laboratory. But unfortunately minis lacked the power for manipulating large numbers with a variable number of decimal places, the so-called floating point numbers. Winningsstad saw his chance, and left Tektronix to form Floating Point in 1970 after taking a degree in business administration. "To show there are no hard feelings, the president of Tektronix, Earl Wauland, joined our board of directors in 1976," says Winningsstad. "Tektronix still sells us a lot of oscilloscopes. Winningsstad's original plan was to build a supermini for scientific application. "The problem was that floating point processors were

in a closed end market, and computer companies would make their own floating point stuff," says Winningsstad. "So the idea came to build a supermini, but the problem was capital gains tax." The Nixon administration raised capital gains tax although, according to Winningsstad, it was against Nixon's own wishes.

This meant a lot of venture capital was frozen, and Floating Point could not afford the investment needed for a supermini.

But this was probably a blessing in wolf's skin, since the computer companies found it more convenient to recommend Floating Point's processors than make their own.

Floating Point got its biggest boost from the 1973 Arab oil boycott. "This made people change their approach to floating point hardware," says Winningsstad.

Suddenly everyone was drilling for oil, and needed powerful minicomputers for the calculations involved. Also the cost of drilling increased dramatically, making it more expedient to use computer models for seeking possible oil wells.

"We came along with the \$50,000 answer," says Winningsstad.

Sales quadrupled in 1976, and in 1977 a revolution in X-ray tomography — the use of X-rays to look for developing cancers — brought a further acceleration in demand for floating point hardware.

In 1982 Floating Point turned in a profit of \$11.5 million on sales of \$86.6 million.

The first quarter results for 1983 are disappointing, says Winningsstad. "The oil glut has discouraged companies from exploring."

Floating Point last month opened a new factory in Dublin with the help of the Irish Development Authority which paid 35% of the building costs, as well as giving a grant towards the cost of training the plant's 75 employees.

## Software producers who ignore real needs

WHY should financial applications software for mainframes be real time and database? Why is it that the American giants in the industry have apparently ignored this natural development for financial packages?

Taking the second question first, it would appear that the Americans have invested so much in their old batch-based systems that to declare them obsolete by manufacturing real time database systems would be tantamount to writing millions of dollars off their balance sheets.

Britain is acknowledged as the home of innovation and ingenuity — remember the Rolls Royce engine, the hovercraft and Comet jet. Even the first commercial computer in the world, the Leo 1, was developed by J. Lyons, a household name in the 1940s.

Looking back over the history of the industry in the mainframe field, it is easy to define the several stages of evolution that have taken place. The first generation packages used the batch process requiring data inputting, then editing, sorting and finally the completion of the update.

Second generation software is the online system where input is via a terminal and data is edited simultaneously with input. The data then awaits the completion of the update overnight. It is this style of package that is being marketed by the majority of established financial applications package producers today.

Third generation software is where data is entered on a screen, validated and edited simultaneously and the stored information is updated immediately. Once accepted, the data is available to all terminal users.

This approach takes advantage of being able to use a database on an application in order to provide real time facilities.

There are those who respond to the challenge of real time database systems by saying that they can offer the same facilities with online systems. Users may not be fooled so easily, nor is this head-in-the-sand position renowned for its marketing success.

The real time element, providing immediate response accounting, appeals to users. The old "time is money" is, true. Stopping credit now, rather than later or after the goods are despatched, and basing the corporation's financing decisions on a truly up-to-date cash position, ultimately save money.

Database design provides definite advantages for the DP department, making it easier to maintain and change the programs. Adding new or changed information to a database is nowhere near as time-consuming or costly as amending records in traditional file structures.

Twenty years ago, when the first database and online monitors were developed, real time systems were expensive in hardware. Like all good theories, the economics of implementation takes time, and much has happened to reduce

hardware costs. Today, the argument no longer holds true. We can have real time database financial applications that do not require expensive hardware.

To expand further on the quality of real time database, there is an ideal analogy to be drawn with Britain's innovation led world: the commercial aircraft industry. In its infancy, limited technology dictated that the propeller would be the method of achieving flight.

As this technology advanced the Turbo-prop, part jet, part propeller, was invented, but appeared to be only a stopgap between a far greater breakthrough — the jet engine. In reality, all three forms of power would achieve the same destinations, but the jet was far faster and left less wear and tear on the passengers. It has remained the industry standard to this day.

Howard Sherrington is managing director of Northern Software Consultants, which recently introduced real time database financial applications packages.

It is easy to see the similarities: the propeller represents our batch packages of the early days; the Turbo-prop is the online system, which is long a stopgap towards the far greater advance into real time database. It is highly likely that these systems will last just as long as the jet as an industry standard.

It must give the financial director some cause for thought as to whether he wishes to spend £30,000 to £40,000 on an online system that will soon become obsolete, or whether to buy a package



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So opened a leader comment in a well-known national newspaper. What is curious, however, is that the paper was not British, but the American Washington Post. The malaise that we in the UK are supposedly so fraught with is also understood to be the malaise of the US.

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The information technology industry has two main players as far as the UK is concerned — Japan and the US. The Japanese are a threat because they have been able to harness their best qualities, most important of which is a rigidly structured workforce. "Japan Inc" says it all, and that country will remain a force so long as its workforce accepts a style of life which is an anathema to most people in the West.

The US is the dominant force in the computer world for one overriding reason — the size and diversity of its marketplace. Of course the US has immense natural resources to back it up, but so too does the USSR, China and Australia. It is its marketplace that makes the US supreme.

Margaret Thatcher is wont to tell the country that if only we would design the best products and use the latest technology, jobs would be created and prosperity would return. Unfortunately it is not so easy.

There is much talk that the country is making the transition from a manufacturing to a service economy. Services, it is suggested, will create new jobs to replace the ones being lost in steelmaking, shipbuilding, coalmining and so on.

Again the US is cited as an example. But not only does the US have a uniquely large and diverse marketplace, it also has the natural resources to support a service-orientated economy. While the service sector will provide new jobs in the UK, it is not a panacea.

The UK's most valuable resource in the past few years — the resource which has saved it from being relegated to a truly second class nation — is North Sea oil. And the management or mismanagement of that resource shows the folly of sacrificing the long term for the short term.

Short term and sectarian interests are largely responsible for the failure of the European Economic Community, which offers the greatest hope of matching the US challenge in both size and diversity. The European Commission has attempted to bring together the conflicting interests of its member nations — The European Strategic Programme of Research and Development in Information Technology (Esprit) is a case in point — but national and commercial rivalries and bureaucratic meddling continue to take their toll.

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Manchester Evening News

## LETTERS

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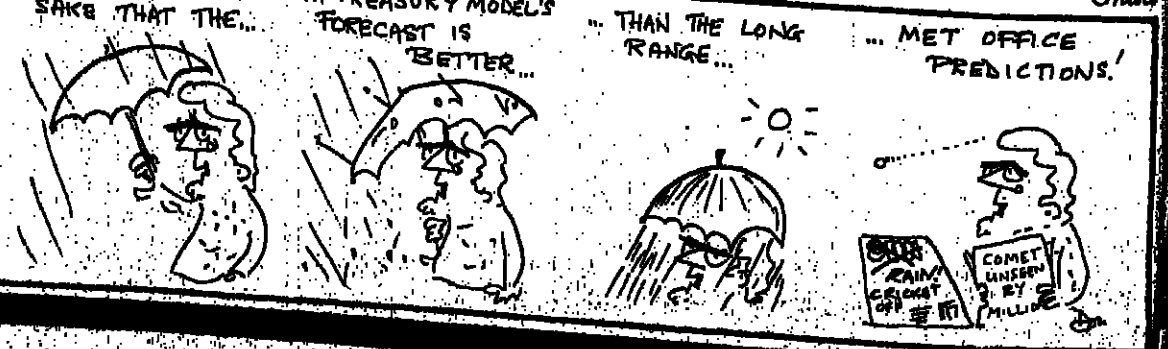


## 10 YEARS AGO

FROM COMPUTER WEEKLY OF MAY 17, 1973: ICL concluded a marketing agreement with Nibdorf UK for a multistation cash receipting system. The agreement was expected to produce £1.5 million in revenues over the next three years. A new security system from IBM known as the Controlled Access System was announced in the UK following its show debut at the Hanover Fair. Singer Data Systems scored a breakthrough with major PoS orders from Woolworths and Debenhams.

## Liveware File

by Don







WINNINGSTAD... "No hard feelings"

## Floating along on a delicate balance

ONE of the cosiest niches in the computer industry is filled by the US company Floating Point Systems, which makes array processors to "coke up" minicomputers for scientific computation. Floating Point has no serious competitor in the market, and relies on keeping a delicate relationship with both the makers of the computers that the processors bolt on to, and with systems houses such as CAP that develop complete packages of hardware and software for scientific applications.

by Philip Hunter

No wonder, then, that Norman Winningsstad, chairman of Floating Point, has no intention of branching out and making complete computer systems. This might offend companies like DEC and IBM whose salesmen at present recommend Floating Point processors to their customers. After all, IBM itself once threatened to make floating point processors to bolt on to minicomputers for the long, tedious arithmetical calculations needed for oil and other technical applications.

The Floating Point story began in 1969 when Data General introduced the first 16-bit minicomputer. Realtime scientific computation could now take place in the confined space of a laboratory. But unfortunately minis lacked the power for manipulating large numbers with a variable number of decimal places, the so-called floating point numbers.

Winningsstad saw his chance, and left Tektronix to form Floating Point in 1970 after taking a degree in business administration. "To show there are no hard feelings, the president of Tektronix, Bart Wauland, joined our board of directors in 1976," says Winningsstad. "Tektronix still sell us a lot of oscilloscopes."

Winningsstad's original plan was to build a supermini for scientific application. "The problem was that floating point processors were

in a closed end market, and computer companies would make their own floating point stuff," says Winningsstad.

"So the idea came to build a supermini, but the problem was capital gains tax." The Nixon administration raised capital gains tax although, according to Winningsstad, it was against Nixon's own wishes.

This meant a lot of venture capital was frozen, and Floating Point could not afford the investment needed for a supermini.

But this was probably a blessing in wolfskin, since the computer companies found it more convenient to recommend Floating Point processors than make their own.

Floating Point got its biggest boost from the 1973 Arab oil boycott. "This made people change their approach to floating point hardware," says Winningsstad.

Suddenly everyone was drilling for oil, and needed powerful minicomputers for the calculations involved. Also the cost of drilling increased dramatically, making it more expedient to use computer models for seeking possible oil wells.

"We came along with the \$50,000 answer," says Winningsstad.

Sales quadrupled in 1976, and in 1977 a revolution in X-ray tomography - the use of X-rays to look for developing cancers - brought a further acceleration in demand for floating point hardware.

In 1982 Floating Point turned in a profit of \$11.5 million on sales of \$86.6 million.

The first quarter results for 1983 are disappointing, says Winningsstad. "The oil glut has discouraged companies from exploring."

Floating Point last month opened a new factory in Dublin with the help of the Irish Development Authority which paid 35% of the building costs, as well as giving a grant towards the cost of training the plant's 75 employees.

## Software producers who ignore real needs

WHY should financial applications software for mainframes be real time and database? Why is it that the American giants in the industry have apparently ignored this natural development for financial packages?

Taking the second question first, it would appear that the Americans have invested so much in their old batch-based systems that to declare them obsolete by manufacturing real time database systems would be tantamount to writing millions of dollars off their balance sheets.

Britain is acknowledged as the home of innovation and ingenuity - remember the Rolls Royce engine, the hovercraft and Comet jet. Even the first commercial computer in the world, the Leo 1, was developed by J. Lyons, a household name in the 1940s.

Looking back over the history of the industry in the mainframe field, it is easy to define the several stages of evolution that have taken place. The first generation packages used the batch process requiring data input, then editing, sorting and finally the completion of the update.

Second generation software is the online system where input is via a terminal and data is edited simultaneously with input. The data then awaits the completion of the update overnight. It is this style of package that is being marketed by the majority of established financial applications package producers today.

Third generation software is where data is entered on a screen, validated and stored simultaneously and the edited information is then fed back into the system.

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Database design provides definite advantages for the DP department, making it easier to maintain and change the programs. Adding new or changed information to a database is nowhere near as time-consuming or costly as amending records in traditional file structures.

Twenty years ago, when the first database and online monitors were developed, real time systems were expensive in hardware. Like all good theories, the economics of implementation takes time, and much has happened to reduce

tion is updated immediately. Once accepted, the data is available to all terminal users.

This approach takes advantage of being able to use a database on an application in order to provide real time facilities.

There are those who respond to the challenge of real time database systems by saying that they can offer the same facilities with online systems. Users may not be fooled so easily, nor is this head-in-the-sand position renowned for its marketing success.

The real time element, providing immediate response accounting, appeals to users. The old adage, "time is money", is true. Stopping credit now, rather than later or after the goods are despatched, and basing the corporation's financing decisions on a truly up-to-date cash position, ultimately save money.

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hardware costs. Today, the argument no longer holds true. We can have real time database financial applications that do not require expensive hardware.

To expand further on the qualities of real time database, there is an ideal analogy to be drawn with another area of industry where the commercial aircraft industry. In its infancy, limited technology dictated that the propeller would be the method of achieving flight.

As this technology advanced the Turbo-prop, part jet, part propeller, was invented, but appeared to be only a stopgap between a far greater breakthrough - the jet engine. In reality, all three forms of power would achieve the same destinations, but the jet was far faster and left less wear and tear on the passengers. It has remained the industry standard to this day.

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Who said computers destroy jobs? If it takes six people to cut the first sod for they'll take on. Six managing directors, six tea ladies.

## The Flying Circus

IN the beginning was the acronym. The words that the acronym is meant to represent come afterwards, at least in the case of the computer industry, so renowned for its imaginative names. Let's take an example. One creative genius was given the job of dreaming up a suitable appellation for IBM's latest system, and liked the sound of the acronym GA, which after all stands for Generative Architecture.

"But GA stands for our arch enemy Gene Amdahl," pointed out some publicity person.

"OK, what about RA, for Extended Architecture," rejoined the creative genius.

"No good. That stands for Eugene Amdahl, our arch enemy," came back the PR person, quick as an IBM 360.

So in the end it had to be XA. But I think Amdahl has the last word. He has a pet python called Ximenes.

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Managing Director  
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Cardiff.

Data Processing Managers should try this simple cost-cutting exercise.



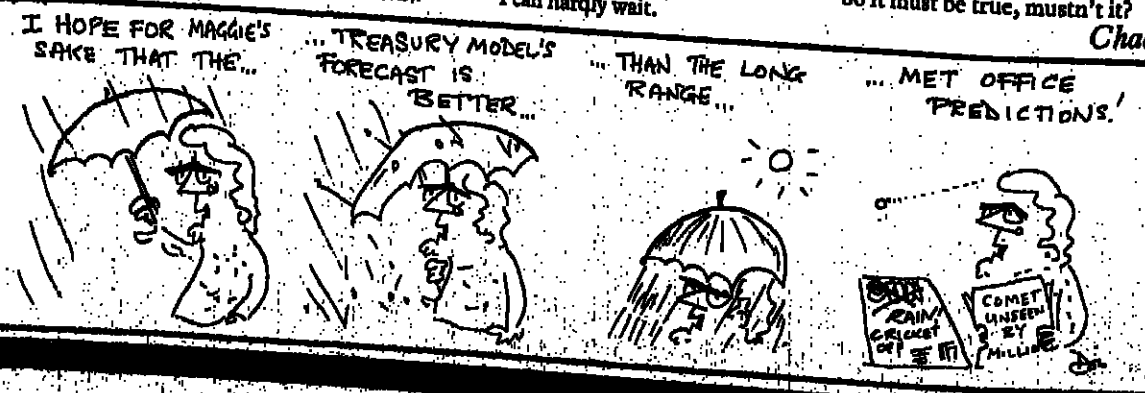
PT7  
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Liveware  
File

by  
Don





## WORKPLACE



SLOMAN... "Easier to write programs to construct searches in Lisp."

# Symbolic boost for artificial intelligence

THE battle for the growing artificial intelligence market has so far been fought more with software than hardware in the country.

But Symbolics, US maker of the first machine dedicated to the AI language Lisp, is muscling in with a new combination of hardware and software.

Symbolics has begun to deliver its second Lisp machine, the 3600, to Europe. It supports several languages as well as Lisp, and offers an improved interactive programming environment with debugging facilities, also networking facilities with a link to Ethernet.

Lisp is the most widely used language for AI in America. Symbolics has two main competitors in the US for Lisp machines, Xerox and Lisp Machines Inc. But Symbolics at present has a clear run at the UK market.

Symbolics released its first Lisp machine, the LM-2 in 1981. This is now being phased out after 52 sales. The company has more than 200 employees, including several of the team that originally developed Lisp in the 1970s at the Massachusetts Institute of Technology. The current president of the company, Russell Nofsteker, was head of the AI unit at MIT.

Lisp is a concise language, described as "elegant and economical" by its addicts, but as "unreadable" by its opponents.

Its popularity in the US springs partly from its suitability for natural language processing. It is good at manipulating symbols, and for building lists of related qualities, such as the meaning of a word and its grammatical type.

The new Symbolics machine supports the deluxe version of Fortran, Fortran-77, in an attempt to woo the scientific and engineering community, which uses the language for most of its applications.

Chris Kenny of Electronic Associates, the UK distributor for Symbolics, says that scientific users will be attracted by the power of the machine, and might use the Fortran initially. "But we hope to woo them to Lisp. It is much more efficient."

Lisp runs quickly on the Symbolics machine designed specially for it, although on other machines it runs slower than other high level languages like Fortran. But it is certainly more concise - a 400-line Fortran program will often translate into 50 lines of Lisp.

For this reason it is harder to read, and also to maintain, unless the implementation has good interactive debugging facilities, which the Symbolics 3600 does.

Aaron Soman, of Sussex University, who has helped develop and implement a rival language to Lisp called Pop-11, thinks that people will only change to Lisp when they find there is something they cannot do in their usual language.

"It is much easier to write programs to construct searches in Lisp than Fortran," he says.

But Soman admits that there is by now a formidable collection of existing Fortran programs for scientists and engineers, so they will need a good reason to change to Lisp.

Symbolics has so far delivered its 3600 machines to ICL for development of a computer-based training package, and to the German electronics giant Siemens for research in machine translation, an application in which Lisp leads the field.

Racal Decca has also bought one of the machines to develop expert systems for the oil industry.

Kenny says that there are another 10 UK European orders in. The cost of the 3600, including all the software, is £10,000.



NCC's new Cobol compiler service nets a big fish

# ICL leads the way to validation

STANDARDISE or be damned! That is the stark message reaching makers of UK Cobol compilers, as the National Computing Centre swings its validation service into action.

The Centre launched its Cobol validation service in March in an attempt to bring UK compilers into line with the 1974 standard laid down by the US Department of Defence. And already the service has landed the biggest possible fish, ICL.

The next version of the Cobol compiler for the ICL 2900 under the Virtual Machine Environment (VME) will be validated by the Centre. According to Vony Gwillim, head of the Centre's new validation service, this will pave the validation way for other UK companies.

"I think once ICL is validated, others will follow suit," she says. Gwillim believes ICL's decision will remove the taboo in the UK against conforming to the standards dictated by the US.

But why has it taken ICL such a long time?

ICL's manager of Cobol production products, Ken Watts, thinks that maybe it is for chauvinistic reasons. ICL had not wanted to bow to the strong US wind.

Watts says the decision to go for the validation now was based as much on a need to protect existing markets, as to seek new ones. US customers have never insisted on validation.

But as more compilers are validated, customers will come to expect their Cobol to have a certificate, just as a car must have its MOT.

Both Watts and Gwillim expect that the government's powerful purchasing body, the Central Computer and Telecommunications Agency, CCTA, will now make a stronger statement in favour of validation.

"I feel that the CCTA didn't come down too heavily in case ICL was caught out," says Watts. That fear will soon be groundless.

The Centre is meanwhile busy

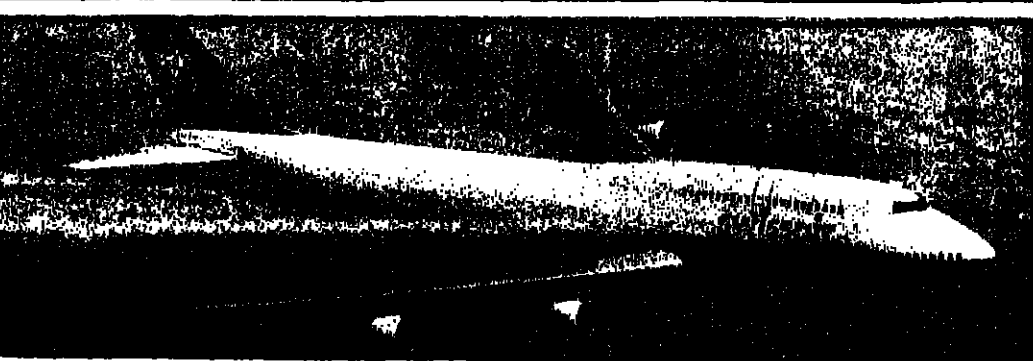
building a database of Cobol installations aimed particularly at first-time buyers of compilers. Results are coming in from 60 questionnaires sent out to compiler suppliers, and the Centre aims eventually to present the results in tabular form to give a clear display of the differences between the various Cobol implementations.

The service will also be of interest for installations converting from one Cobol to another, says Gwillim.

"People will be able to phone the NCC for information on Cobol," she says.

Watts says that only minor changes are having to be made to the ICL compiler for validation. One is that ICL Cobol allows only single sentence comments in programs, while ANSI Cobol allows several sentences.

Systime and Computer Technology have already had their compilers validated, as has Micro Focus. Ferranti has announced that it will go for validation, and GEC is hovering.



London software is providing the first public guide through the maze of cut-price air fares.

# Software allows free air fare info

SOFTWARE written by a small London consultancy is behind the UK Air Travel Advisory Bureau's successful telephone service offering the public free information on discount air fares. The package was tailor-made for ATAB by systems house Astex, which deals exclusively in the Memory 7500 microcomputer.

The system works online and enables ATAB to tell enquirers over the phone which travel agent is offering the cheapest air ticket to the required destination.

Astex has also written software for ATAB's service giving travel agents information on wholesale tickets.

This service also enables travel agents to buy tickets from other travel agents. The cut-price air ticket business has become such a maze that travel agents can sometimes benefit by buying tickets from their competitors.

ATAB was set up a year ago to put the public in touch with the cheapest travel agent for the flight wanted. After a few months the second service, called Flight File, was launched for travel agents.

The ATAB public service makes its money from the travel agents it represents, who pay to have details of their flights on the computer. It cannot therefore guarantee that it will find the cheapest flight, since

it relies on travel agents coming up with the details - and the cash.

The public ATAB service is online and is constantly updated. Flight File for travel agents is not online, but produces weekly-updated microdisks which are sent out to the 200 subscribers.

Flight File receives price lists from 150 discount ticket wholesalers covering 500 worldwide destinations. This information is reduced to a standard form listing the available flights to each destination.

Astex has also developed a general purpose reservation system for travel agents that runs on Memory computers.

## General manager for Commodore

■ Howard Stanworth has been appointed general manager of Commodore Business Machines (UK). He succeeds Robert Gladwin who has been promoted to vice-president, Commodore Electronics, Hong Kong.

Prior to joining Commodore, Stanworth served as a director of St Ivel and managing director of Unigate Dairies (Midlands). In this capacity he had responsibility for over 3,000 employees involved in the processing and distribution of the company's products.

His previous management experience includes the managing directorship of Excelsior Plastics (Wincanton Group), and production services manager and general manager (service) within the consumer electronics activities of the Rank Organisation.

Stanworth's appointment is the first in a series of moves which are



Stanworth

being implemented to coincide with the establishment of the Commodore European manufacturing and distribution headquarters in Corby and re-affirms the company's commitment to maintaining its lead in the production of home, personal and business microcomputers.

■ Peter Lusty has joined Prime Computer as sales executive for the City of London and South-west district. He was previously an account manager with Burroughs Machines.

■ The computer and software division of Parkhurst and Company, the South Wales based estate agent, has appointed Mike Brewer as Systems Analyst/Programmer. Brewer, who joins Parkhurst from RTZ Computer Services, will be responsible for major development projects on the computer software system the company is offering to estate agents covering residential sales, commercial property sales, property management and accounts.

■ Janet Stanfield has joined Applied Micros, the Warrington-based microsystems house, as training manager. Prior to taking up her new position, she was a sales executive for Comshare.

■ Frank Ferrett has joined the Golden River Company as UK sales manager. He was previously in a field sales position with Microdata Ltd.

■ Lion Microcomputers the London micro retailer, has appointed Shahid Gillani service engineer/manager. He will be responsible for in-house and external servicing of all computers and peripherals. Gillani joins Lion from Leigh Instruments where he spent two years as a service engineer.

■ Trend Communications, the data communications division of Phicom, has appointed John Ing as a product marketing manager with responsibility for the market development of Trend's range of printers. He was previously general manager of Pertec International, a subsidiary of Triumph Adler.

■ Reg Mills has been appointed general manager and a director of Kerridge Computer company (Ireland). He has been with the firm for three years.

■ Package Programs Limited has appointed two more consultants for its subsidiary PPL-MMS. They are Sylvia Ribbin and David Finch who are supporting users of the MMS General Ledger, Accounts Payable and Accounts Receivable Systems. Ribbin, on the client support side, has wide DP experience, including over two years with Univac in South Africa and the UK. Systime in Leeds where she was a systems analyst for two years, and latterly as DP Manager with Rocol, the Leeds based lubricant manufacturers. Prior to joining as a technical support consultant, Finch completed a four months TOPS course with Datasolve.

## DIARY

MAY 25 Tecontrol of Electricity Distribution, IEBIE. The Polygon Hotel, Cumberland Place, Southampton. 8.30.

JUNE 1 Computers in court - DP and the law. IDPM Central London branch. Altergo, 15-19 Kingsway, London WC2. 6.00

Privacy - data protection legislation, by Michael Wood of the NCC. IDPM Sussex branch. Room G27, Mithras House, Brighton Polytechnic, Mouldecombe, Brighton. 7.00

JUNE 7 Social evening. IDPM Birmingham branch. Tickets at £3.50 are available in advance from the secretary. Buffet and skittles included in cost. Members may bring along non-members as guests. Tel: (021) 550 0375, Selly Park Tavern, Pershore Road, Selly Park, Birmingham. 7.00.

JUNE 8 Chloride Standby Systems. IEBIE. Polygon Hotel, Cumberland Place, Southampton.

JUNE 9 Wine tasting/social event. IDPM Sheffield branch. Fountain Precinct, Sheffield. 7.00. Tel: John Reedman on Sheffield 618539.

JUNE 13 Tomorrow's staff - where are they now? IDPM Norfolk branch. Castle Hotel, Castle Meadow, Norwich. 7.30.

## CONFERENCES

■ A CONFERENCE entitled Cost Effective Computing aims to update financial directors and managers responsible for data processing on significant developments in computer systems techniques. Emphasis will be given to improving productivity in the systems development process. Topics will include: Cost trends of hardware, software and people; the present EDP environment - increasing costs and decreasing return on investment; end user computing and micro; database applications development; project management; and improving productivity - a systems de-

velopment strategy for the Eighties. Organised by the Institute of Chartered Accountants of Scotland, it will be held at Edinburgh's Crest Hotel on June 21 and costs £76 + VAT. Details: (031) 225 5673.

■ Networks expert Professor Martin Healey will address an NCC seminar called Networks for the Business User on May 26 in London and on June 22 in Manchester. The seminar provides an overview of the different network architectures and the environments in which they are most effective. Details on (061) 228 6333.

■ Zegal Dynamics has appointed Adrian Young as systems consultant at the company's business centre in the City of London. He was formerly a systems design engineer at Comshare. Mike Batley has been named Zegal's sales manager. He joined the company as a salesman from Anderson Jacobson.

■ John Martin has been appointed as director of engineering at Plessey Telecommunications. Based in Liverpool, he will report directly to Eric Clark (Chief Executive of Plessey Telecommunications Ltd) and will advise on all engineering matters. He joins Plessey from British Telecom where his last appointment was as director of System X development.

■ Ken Highland has been appointed marketing manager for Rediffusion's new distribution/dealer division, designed to pursue volume sales of the firm's Teleputer, a microcomputer-cum-videotext terminal. He formed his own marketing consultancy in 1979 and also established a family catering and health food business.

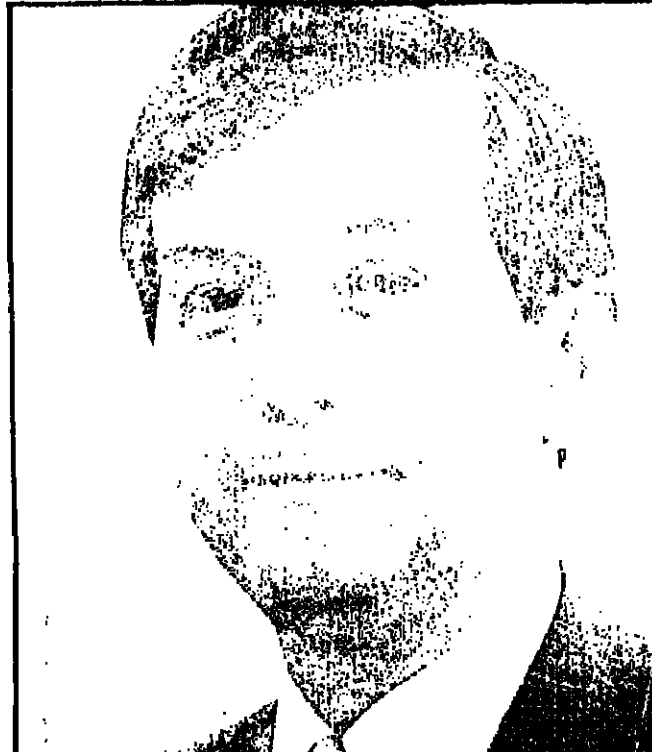
■ Eosys is expanding its telecommunications division. Tom Yates has been recruited as a senior consultant from Bristol, where he was senior telecommunications engineer. James Munro, who also joins Eosys as a senior consultant, was previously communications systems manager at Arbat.

■ Torch Computers has reorganised its sales and marketing operations. William Wilson has been appointed UK sales manager. He joins the firm from Rank Xerox, where he was advanced systems marketing manager. Torch PR manager Dick Tam-madge has been appointed marketing manager and will run Torch's new marketing department. The company has concentrated its production, financial and administrative functions into an operations division, to be headed by former financial controller Neil Mackay.

■ Johnny Glover has become European general manager for Selanar GmbH. He was previously with IST Computer of Munich as branch manager.

NBI has appointed John Lewis as London branch manager. With 15 years' experience in office systems, Lewis joins NBI from CPT, where he was government and national accounts sales manager. Previously he was with Rank Xerox and Olivetti.

■ Adding extra back-up to its Rosendale technical sales team, Pete and Pam Computers has appointed Rita Tattersall to its new tele-sales force. Tattersall joins the company having had two years' experience in a similar position with another Rosendale company.



Alpha Microsystems (Great Britain) the newly launched UK subsidiary Californian microsystems manufacturer Alpha Micro, has appointed David Ford (above) UK general sales manager. Ford joins the firm from Digital Equipment where he was marketing manager of the company's laboratory data products group. As well as two years with DEC, Ford's experience exceeds years in the computer industry, with positions with Texas Instruments, Hewlett-Packard, and Elliot Automation Computers.

# A new star is born



# pulsar

## 16 BIT BUSINESS SOFTWARE

PULSAR business software is the creation of ACT - the company behind the Sirius 1 and recognised leader in 16-bit personal computing. The new PULSAR range, developed by ACT at a cost in excess of £1 million, takes full advantage of the power and expandability of 16-bit computers.

It is inherently faster and more powerful than traditional 8-bit software.

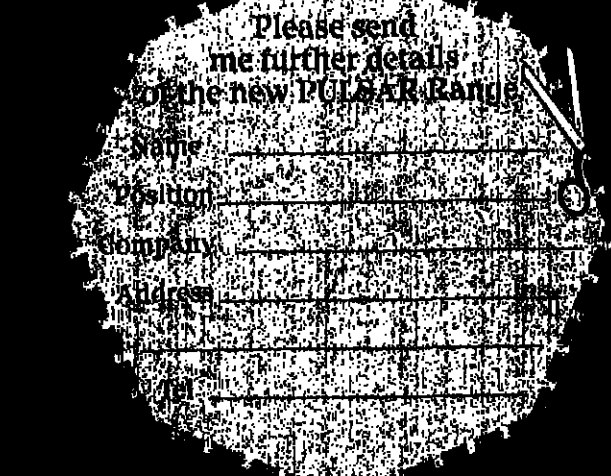
And it is a true 16-bit range, designed and developed by ACT's own software engineers.

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AVAILABLE NOW FOR SIRIUS - IBM PC and DEC Rainbow coming soon.



# Esperanto set for EEC revival

AUTOMATIC translation of human languages is not coming easily - but there is now hope of a breakthrough by making use of the international language Esperanto.

The idea is that a language should be translated first into Esperanto, then into the target language. This makes it easier to cope with subtle shades of meaning, and reduces the number of machine translators needed for a given number of languages.

The European Community has eight main languages needing 56 different translators for direct conversions. By use of an intermediate language, only 16 different translators would be needed.

The EEC has recognised this, and lodged a big contract with the Danish electronics company Christian Rosing, and Dutch company DSC, to develop language translators using Esperanto as an intermediate language.

Why Esperanto? One reason is that there is plenty of Esperanto knowledge around, with over a million regular speakers of the language in Europe.

Esperanto was developed in the last century as an international business language. The closest real language to it is probably Spanish, but the language originally proved a flop and has since survived only among a small coterie of faithful intellectuals.

Now it could be set for an unexpected resurgence, since it is ideal for machine translation. Unlike all real living languages it is perfectly regular, with no funny verb endings.

But since it was designed to be spoken by people, the language does have some life, and is sufficiently rich and flexible to express legal, scientific, political and even ethical ideas. Whether it can also express the works of James Joyce remains to be seen.

more precise translations could be obtained by using an abstract language as an intermediate. One such language is called Sluut, and consists of labelled syntax trees pointing at nodes of meaning in a similar organisation to a thesaurus.

The trouble with such abstract languages is that they mangle all life out of writing of any subtlety. They also suffer from being inaccessible - each language would disappear into a black hole of obscurity before being reconstituted shaken and shaved as the target.

Esperanto is a bigger language than the abstract ones, so it would take more processing power to use it. But that is likely to be the least worry.

Esperanto is not quite dead, so it is subject to inconvenient change. But all changes are controlled by one authority, and would be introduced only to reflect some common international change.

Some people have suggested I HAVE before me six small weights, identical in appearance. However, despite their similarity, three of the weights are slightly heavier than the other three. Let us say then that three of the weights are x gm each, and three (x + 1) gm each.

The problem is to work out a method for identifying all six weights, using a balance-scale three times only.

As an additional constraint, each side of the balance can hold just one weight at a time. See page 62 for solution.

Workplace is compiled by Philip Hunter.

## PUZZLER





A major Belgian bank is claiming a world first in fully electronic document processing . . . Jeremy Woolfe reports

# Top savings bank takes on a new image

ACCORDING to conventional thinking the large scale data entry processing of bulk quantity standard documents such as money transfers, airline tickets, hospital health records and numerous others is best automated using the technology of the microfilm. Such systems of varying degrees of ingenuity are currently attracting the largest share of investment in their field of document handling.

However, there is a potential rival to microfilm systems that does away with the physical celluloid of the film. This is the electronic image or virtual image system, in which the film is replaced by converting the image on the document into standard computer data consisting of digital electronic pulse trains.

Despite its apparently easy integration with mainstream computer science, the reputed state of lack of development of this technology results in it being classed as just one more hopeful technology of the future.

In fact the technology has recently gained a substantial foothold as a development very much of the present and would seem to be on the verge of placing its footprints over even wider areas. This is a reasonable inference to draw from at least one large scale and highly successful

system based entirely on virtual imaging.

This little publicised project is installed at the headquarters of the largest savings bank in Belgium, the Crédit Communal de Belgique, a major enterprise which in assets is among the first 100 banks in the world.

The Crédit Communal, whose main purpose is the financing of local authorities in Belgium, heads

**Use of electronic image data entry has meant greater productivity. The people who key in are about 30% more efficient**

a structure of 1,300 independent agents distributed throughout the country and employs more than 2,000 people directly. Another 2,000 are employed by the agents.

Data processing arrangements at the Crédit Communal focus on IBM computers located in the bank's Data Processing Centre in the main commercial area of Brussels.

Two IBM 3081 mainframes are linked to various ancillaries such as

disc storage units, magnetic tape units, a mass storage device and also a microcard configuration.

Transmission of data into the Brussels centre is carried out via a number of channels, including paper documents, tape, diskettes and, where justified, direct telephone channel links.

But the most notable means of data entry is the bank's electronic image system which came fully on stream in the summer of 1982. Out of a total 250,000 documents passing in each day, the new pioneering system is already handling 45,000 - nearly 20% of the total.

Use of electronic image data entry has meant greater productivity. The people who key in are about 30% more efficient.

Under the conventional system of multi-keyboard data entry each operator would process around 200 of the bank's standard money transfer documents an hour. Working at maximum speed one operator could reach 220 documents an hour.

This compares to a maximum of 280 documents an hour using the electronic image system and 260 documents an hour at normal working speed.

Expressing the same comparison in another way, a team of 28 people working a standard 6hr 45min day who would be expected

to process 37,800 documents a shift with conventional data entry systems, would raise output to 49,140 documents under the new system.

Another major benefit is reduced requirement for staff training. With the electronic image system training can be carried out in several hours, rather than over a period of three or four weeks.

The new installation at the Crédit Communal bank is the brainchild of two Belgian entrepreneurs, Daniel and Roland Borrey,



One of the main headquarters buildings of the Crédit Communal Bank in Brussels, which is claiming a world first in virtual image processing.

converted into binary code pulse trains, 0 for white and 1 for black. Each document, which measures 165 x 170 mm is represented by 1,024 x 512 individual constituents.

A compression algorithm then "packs" the data, reducing its volume by between 70% and 80% by means of a code which economically compresses out most of the redundant white "0s".

Images captured by this method can be recorded on tape, stored on disc or mass memory, and displayed on a video screen. Data entered via keyboards from documents is stored together with the image.

At the Crédit Communal, as soon as the paper documents have passed through the image capture stage, they are stored. They do not move, then they are destroyed.

All document "manipulation" is carried out electronically. The document is only "seen" when its image, or the image of part of it, appears on anyone of 40 video screens, including four used for correcting any errors.

As a result of the electronic manipulation, various parts of the X document can be treated separately, according to need. In fact, the first data to be registered is the document's 12 figure identification which is in printed form using a normal typeface, not an optical character. This is recognised by fully automatic means involving advanced pattern recognising software.

Once this figure, which provides the key for any later retrieval of data or images has been captured, the document is then scanned again automatically, to recognise the presence or absence of data in various zones.

Only when this has been carried out are parts of the document's image shown to human operators. A flying cursor is used to indicate

**All document 'manipulation' is carried out electronically. The document is only 'seen' when its image, or the image part of it, appears on any one of 40 video screens, including four used for correcting any errors**

the precise zones requiring attention. This relieves operators of decisions of what information on the document needs attention and contributes to a reduction of keying-in personnel.

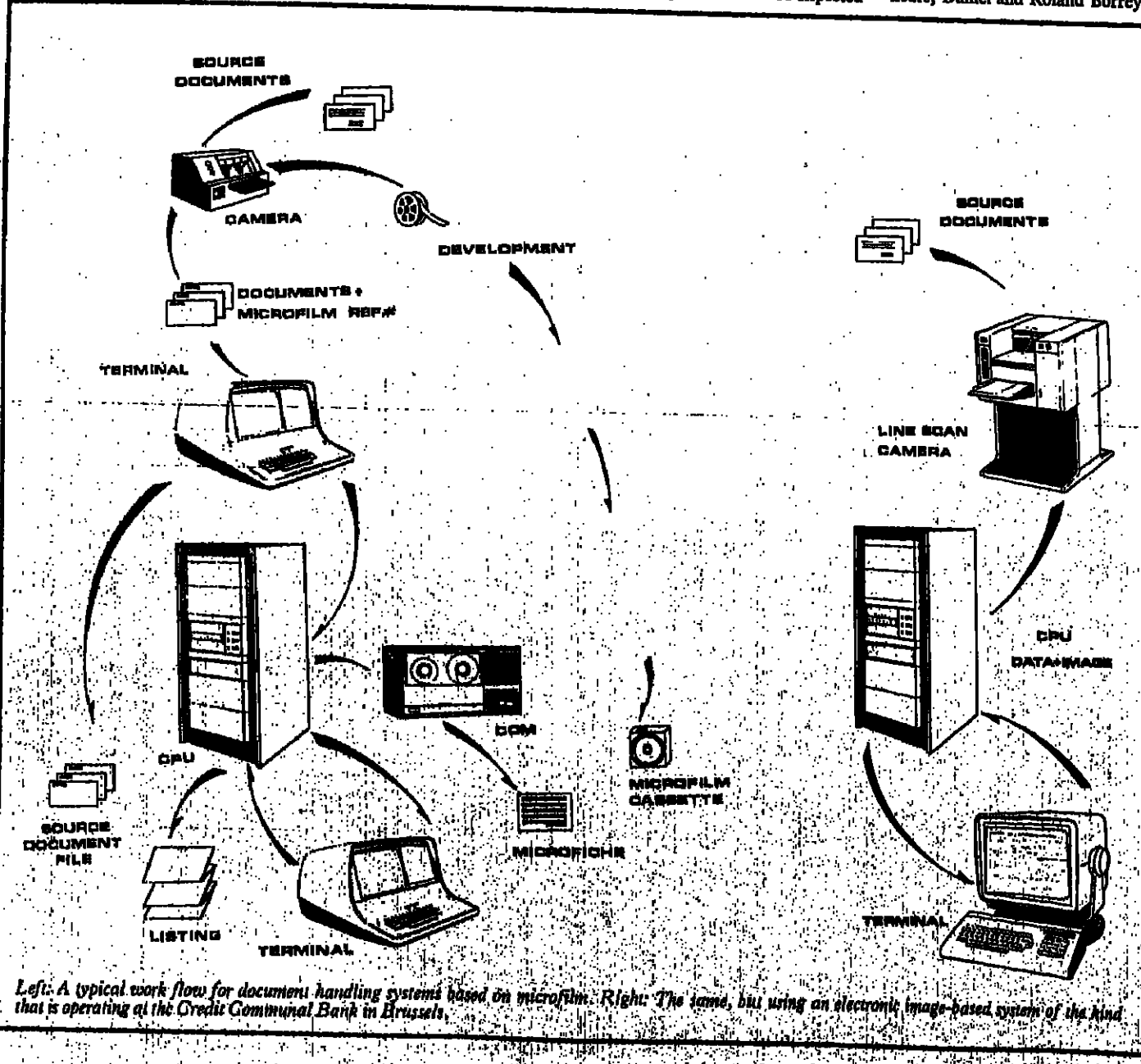
Part of this improvement is gained by increased efficiency in correcting any errors. This is dealt with simply, during a second phase of data entry. Checking is aided by automatic analysis of the document, the existence of check digits among figures and also by an automatic scanning system that prior to keying in counts the number of digits hand-written in boxes on the X document and then later compares this with keyed data.

Post-data entry technology with the VIPS 2000 involves retaining online the document images together with keyed-in data during eight days, before transfer to mass storage tape.

Benefits of the system, apart from increased productivity, involve improved security (because physical handling of documents is cut to the minimum) and relatively easy retrieval of data from storage.

Behind this whole step forward in the technology of document processing lies a story of endeavour that began in 1973.

Work on the electronic document was prompted in 1977 through a research contract from the European Commission, but from the first test models, which were achieved relatively easily, there were years of effort in tackling practical problems.



Left: A typical work flow for documents handling system based on microfilm. Right: The same, but using an electronic image-based system of the kind that is operating at the Crédit Communal Bank in Brussels.

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Cullinet's relational database for IBM computers.

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IDMS/R is the single solution to the two sided problem of providing useful database applications for both end users and production tasks.

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Where others have tried to propose relational or psuedo-relational components that exist separately from the

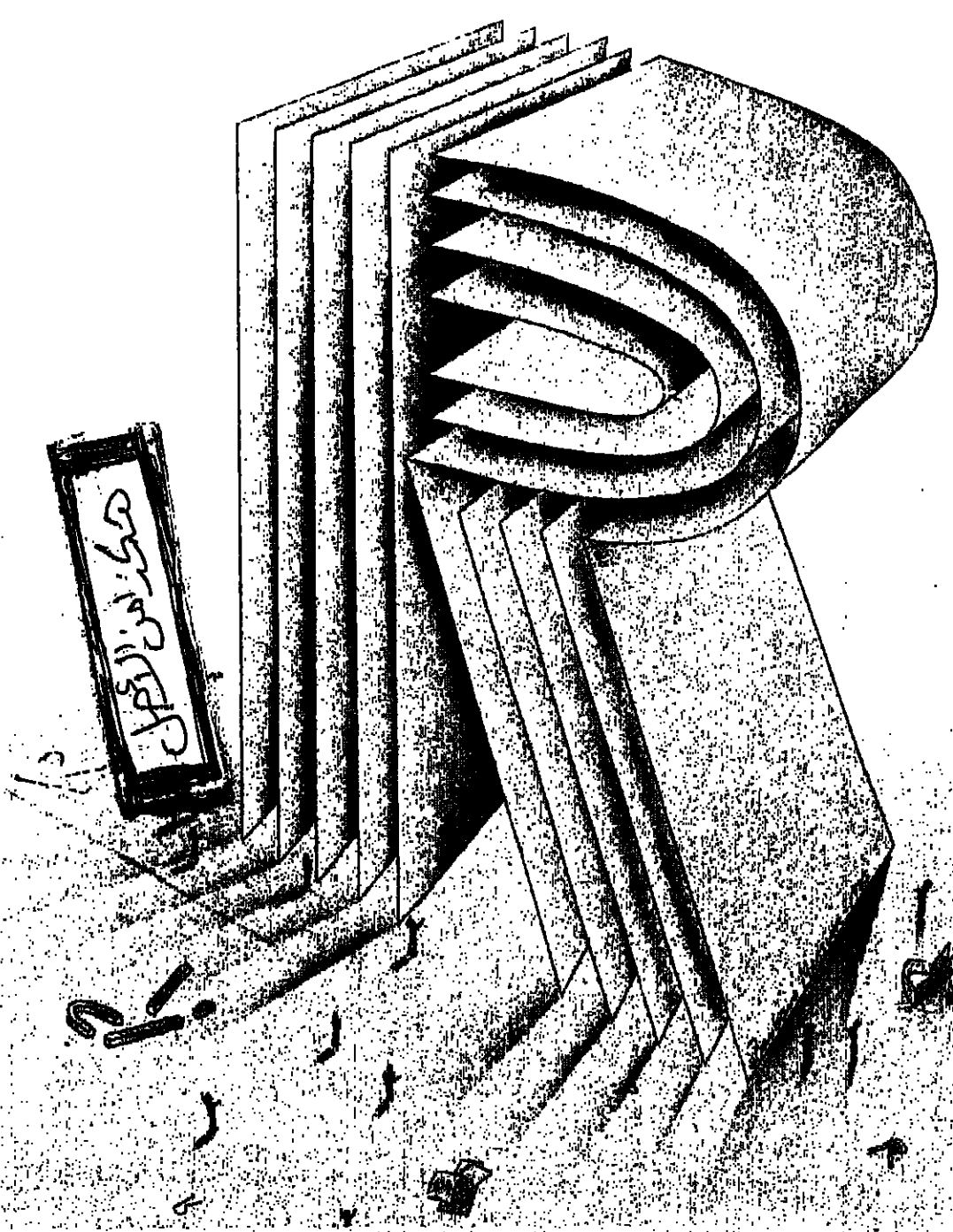
production database, Cullinet's is the only one that lets both work together. Thus serving the whole corporation by serving all of the needs within it.

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# Honeywell faith is in mainframes

Honeywell product manager Keith Manning explodes some misconceptions about demise of the big machine

A BELATED announcement by Honeywell that it is entering the microcomputer fray was made in the US at the end of March. But in the UK Honeywell product manager Keith Manning was more than a little coy about the product's release over here.

He preferred to talk about big machines: "There are many misconceptions about the demise of the big machine. I believe its functions will increase."

The root of Manning's belief is the enormous amounts of data that are on tap as systems are tied into large networks.

"Our users are telling us they need big networks of machines, probably using public networks to transfer data".

And with those networks "we

will be picking up an awful lot of data. We will need big machines with manipulative software to handle that data".

The importance of the mainframe to large networked systems makes "nonsense of the rumours that we are getting out of the mainframe business. We are in the mainframe business to stay," Manning emphasises.

Even Honeywell's personal

**There are many misconceptions about the demise of the big machine. I believe its functions will increase**

computer announcement could be seen to reinforce Manning's arguments about the importance of the mainframe. The micro, dubbed a "corporate micro" in the US, is not aimed at the standalone market. It is compatible with Honeywell's distributed systems architecture, DSA, and with IBM communication protocols SNA and bisynch.

But Manning was not prepared to go on the record about the micro, the Microsystem 6/10, just yet - at least until the UK management has developed a local market strategy. What he would talk about was Honeywell's office automation products, where an obvious parallel can be drawn.

Manning admits that Honeywell came late to office automation, and



MANNING... "Our users are telling us they need big networks of machines".

the UK announcement came some six months after the US release.

"But we never saw it as a standalone system. So when it came it could communicate to mainframes".

And what will be the hub of office automation systems? The mainframe, he says.

Office automation is one of the four main areas Manning thinks will drive the marketplace in the next decade. The others are distributed systems, which are "here to stay" even with increased telecommunications costs; application specific solutions; and communications.

Office automation is at last "beginning to take off," Manning says, but he has no doubts that it is fundamental to future product developments. Most of Honeywell's sales of office automation systems have been to customers that already have hardware installed. The success of projects such as the one in Strathclyde, where Honeywell is installing an office automation system as part of the Department of Industry's programme to back test sites in the UK, is critical to ensuring wider acceptance in the market.

"Our users are telling us they want improvement in development programs, in ways of training people. We are being asked to develop standard software, standard interfaces, standard files, languages, and even hardware," Manning says.

Productivity tools is one area in which Honeywell is seeking to meet this need: in developing specific products, half the research and development expenditure goes on software productivity.

The other key to Honeywell's approach is that all its networking products are developed to ISO standards across the product range. And he believes that in the end other manufacturers will have to go for ISO standards - "even IBM is taking notice".

In local area networks, Honeywell is sticking closely to the IEEE and ISO. Honeywell is not trying to lead the way, but Manning says that when it is "absolutely clear" which standards will hold sway, Honeywell will provide LANs for its users.

But Manning couldn't say whether Honeywell will manufacture a product, or just allow users to interconnect.

The company is looking closely at Ethernet, token bus and token ring LANs.

On token bus, Honeywell has been providing information and doing tests for the IEEE. Through its association with CII-Honeywell Bull, it knows the position being adopted by the European Computer Manufacturers' Association.

"Standards are evolving through the committee stages, and we are doing all we can to impact that," Manning says.

While local area networks may be stealing the limelight, Manning is one of many who does not underestimate the future role of PABXs (Private Automatic Branch Exchanges). A digital PABX can in itself provide LAN capability, and Manning says Honeywell has been "creeping up quietly on it for a number of years".

In March 1981, it acquired Action Communications Systems, a Dallas-based company which Manning says is one of the biggest network optimisers producers in the US. Honeywell has also picked up several other PABX distributors

in the US, including Telamerica, TR Communications and Executone.

Honeywell is evaluating its own very fast digital switch. That is part of the company's normal research and development effort, and there is no commitment to announce a product.

Manning sees a Digital Control Centre as the heart of future systems, which would include a large-scale general purpose computer, multifunction workstations, LANs, and building security controls, all of which would depend on voice and data input.

Honeywell, Manning thinks, is well placed to meet the future needs of its customers, and he talks of a new found "synergy" between its process control and information systems divisions.

Manning pointed to changes to Honeywell Information Systems which were announced in the US in March as evidence of the com-

**One of the essential requirements for the development of office automation is a standard executive workstation**

pany's commitment to a "market driven strategy". A Manufacturing Systems Division, responsible for factory automation, and an Office Management Systems Division, responsible for office automation, were created to complement the Application Systems Division. Each is a complete profit centre, with its own R&D and production.

The changes will not, however, affect Honeywell's selling of its products by geographical area. While many other manufacturers are realigning themselves to a line of business type of selling operation, direct selling by geographic area will remain "very important".

Looking to the future, Manning says that one of the essential requirements for the development of office automation is a standard executive workstation. But a start would be an executive workstation which would be standard across different applications within one manufacturer's product line.

He also expects exciting developments in storage media. The price performance of disc drives is still better than other devices, he says, and this will go on. But there will be an increasing requirement for archiving capability, with four to five second access time. That, he believes, is one of the essentials of office automation.

The video disc is one solution, with a 64 platter juke box type system, where one platter can be pulled out at a time - likely to be two or three years down the road.

A vast improvement in end user facilities is essential, he says, and the mainframe has to become more approachable. That is because, Manning says, "the better the end users system, the more power you need to drive it".

Which brings us back to the misguided talk about the early demise of the big machine.

## OFFICE AUTOMATION

# Matsushita lays out \$600m a year to take office market

Donald Kennett outlines the office company's ambitious 10-year strategy

MATSUSHITA'S ambitious plans for leadership in office automation were outlined earlier this month at the UK launch of its UF-800 range of modular and upgradeable facsimile transceivers.

Backed by a \$600 million a year research and development programme, the company is pursuing a 10-year strategy of drastically reducing its dependence on consumer markets. Office automation is to play a key part.

Products in the pipeline include three different types of optical disc storage device, an optical fibre based local area network, a 16-bit small business computer, a 100-line private telephone exchange and a switching system for cellular radio mobile telephone services.

Achievements so far include introducing the first facsimile transceiver to conform to the CCITT Group III specification for transmitting an A4 page in less than a minute (in 1981) and the first radio paging device capable of displaying the caller's telephone number (last month).

Mamoru Miki, joint managing director of Matsushita's UK office automation subsidiary Panasonic Business Equipment, expects the Japanese office automation market to grow at 20% a year through the 1980s, with other markets following the Japanese lead.

"Japanese companies are stepping up their investment in

office automation," he said. "Their factory investment is nearly complete and offices will be next." The US would be the next market to take off, he added, while in Europe the pace would be set by the Scandinavian countries.

The UK was also regarded as a significant market and the last two years had seen crucial groundwork for the company's growth in it, Miki said. "We have been solidifying our market foundation and our factories in Japan have been preparing products ideal for this market," he said. "Now we are confident that our market share will rise steadily."

Miki recently joined his fellow managing director John Sexton, who ran Matsushita's UK business products agency until the company took it over in 1980, to strengthen the links with the Japanese factories.

Its UK distribution will be done through three dealer networks: for microcomputers, photocopiers and telecommunications products. It will be five to 10 years before the three areas merge into a homogeneous office automation market, Miki believes.

"The way the dealers approach the user is quite different," he said. "Facsimile goes through the telephone network, therefore it goes with telecommunications products such as answering machines, autodiallers and pocket pagers.

Copiers are similar to the car industry - the user is interested in image and styling."

"Small business computers are the most difficult. You need very expensive people to sell them."

The modular construction of the new facsimile transceiver will enable the company to introduce a variety of processor-based add-ons and interfaces such as an X21 module for connections to digital circuit-switched public data networks.

The machine also does clever things like skipping passages that are marked in the margin and printing an activity report of all calls made, their time and duration and the code number of any problem that occurred during transmission. And it can send photographs to another machine of the same type by using its 16-step grey-scale on a grid of up to eight picture elements per millimeter.

The optical storage devices in the pipeline include the erasable one Gbyte disc drive which was announced as a world first last month. This is now in the product development stage in which decisions such as what size the disc should be, are made.

The first UK demonstration is planned for the International Business Show in Birmingham in October and test marketing is due to start in Japan early next year, but it is unlikely to reach the UK before the end of next year.

The erasable disc is coated with tellurium oxide, which is used in magnetic recording media. But the addition of small quantities of germanium, indium and lead enables its reflectivity to be altered by a pulse of laser light at such speed that television signals can be recorded in real time.

Last year the company began selling (in Japan only) an optical disc filing system - the Panafile - capable of storing 10,000 A4-sized documents on a 20cm disc. The year before, it launched a system capable of storing 15,000 colour pictures on a 20cm disc for display on a television set. But the UK does not figure in the company's marketing plans for any of the devices for the near future.

And the same goes for the optical fibre based local area network. "The local area network will be a key part of our office automation system, but not yet," said Miki. It might be demonstrated in Japan within the next 18 months, but it was two to three years from being shown in the UK, he added.

Meanwhile, the Panasonic JB-3000 16-bit small business computer has been given a Corvus Omninet interface. The machine is already on sale in Japan - as the Mybrain 3000 - as well as in Australia, Singapore and South Africa. It will be launched in the UK in October.



Miki... "Japanese office automation market will grow at '20% a year'".

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## ROBOTICS

# Where is the rush to go automatic?

## Bohdan O. Szuprowicz takes a close look at the politics of computer-aided manufacture in the West and Japan

**Intel's Gordon Moore . . . contends the US is ready for Japan.**



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## VIDEOTEX

# French Telecom is no longer a music hall joke

Jack Gee looks at how videotex ventures are expanding at home and abroad

FRANCE's videotex ventures are expanding vigorously on the domestic front and capturing foreign markets against strong international competition.

By the end of 1984 500,000 homes and offices will be equipped with terminals providing access to an electronic telephone directory and, in many areas, to a wide range of other databases and home banking and shopping services.

Ironically, the big push to develop Teletel, as France calls its interactive videotex, has come from a Socialist government which before it came into office two years ago had promised to slow the pace at which the new technology was being introduced.

Teletel was promoted with the firm support of President Giscard d'Estaing who in the mid-1970s saw it as the future keystone of France's telecommunications industry. It is hard today to believe that ten years ago French Telecom was one of the most inefficient in the Western world.

But Fernand Raynaud, a popular music hall comic of the time, unfailingly brought the house down with a turn called "22 at Asnières". It was based on a frustrated Parisian's efforts to obtain a suburban subscriber.

In 1984 the old entertainer's act — he has since died in a collision at the wheel of his Rolls-Royce — would no longer raise a titter.

France has long achieved the

targets set by Giscard in the seventh Economic Plan launched in 1975. Its telephone network functions superbly. And it is not without reason that the word "telematics" — the marriage of the computer and telecommunications — has been adopted internationally from the French original, "télématique".

**The new rulers of France quickly appreciated that, by sacrificing technological progress, they would nip in the bud the hopes of founding an industry which would provide jobs and generate profitable export orders**

However, the prospects for Teletel and the entire French telematics programme looked gloomy when President Mitterrand moved into the Elysée Palace in May 1981. During the election campaign Mitterrand had criticised Giscard for imposing Teletel on France against its citizens' will.

The Socialist leader promised that before any new moves were made the trade unions and consumers would be consulted about two major pilot schemes which were about to start up.

These were the equipment of households in Ile-de-France, an administrative department of Brittany, with the electronic telephone directory and, in the Paris

suburbs, the installation of videotex terminals in 2,300 homes. A plan to install 10,000 microcomputers in French schools was also frozen.

This period of uncertainty was short lived. It had obviously been a good political argument for the Socialists to accuse the outgoing Conservative government of th-

rusting videotex on a reluctant public. But the new rulers of France quickly appreciated that, by sacrificing technological progress, they would nip in the bud the hopes of founding an industry which would provide jobs and generate profitable export orders.

The Socialists affirmed that the government's policy henceforth would be to introduce videotex only where householders and business firms volunteered — instead of dragging them, as they claimed the old regime had been doing.

Then Mitterrand and his Minister for Telecommunications, Louis Mexandeau gave the go-ahead to continue the programmes that

were already under way. The Teletel trial, now completing its second full year in the Paris suburbs, gives a good picture of what the French administration plans to achieve with videotex. The objective, as set by the Telecommunications Ministry as long ago as 1978, is to evaluate in real terms the social, cultural, economic and technical implications of the new medium.

The field chosen embraces Versailles, Vélizy and Val-de-Bievre, a residential and industrial area where 2,300 households have been selected from among 8,000 volunteers.

The criteria used were classical. The homes equipped were selected from a representative social and professional cross-section of the population, based on the age of the head of the household and its composition.

Besides the terminals installed in these homes, a further 500 have been located in the offices of the service providers and the project team.

Each household has received a free Teletel videotex adaptor which is interconnected to a television receiver and telephone line and has been lent a small terminal, known as a Minitel according to French Telecom's new terminology.

A charge of 60 centimes (about 6 pence) is made for each connection period of five minutes. This levy is applied irrespective of the distance between the caller and the system (including the remote host centre). In addition, the Teletel user may then pay for certain services in the form of a standard subscription fee to the service provider, a duration charge based on access time within a specific service-host, or a charge per frame displayed on the screen.

French Telecom's policy is to act only as a "carrier of information" and not to get involved in managing the information centres and host.

The "smart" microprocessor card is now being tested in the Vélizy trial as an instrument for charging subscribers for access to services and for home banking.

French Telecom has connected smart card readers to a subset of 500 Teletel user terminals. More than 40 French government agencies provide 20,000 pages on subjects covering consumer matters, education, taxes, health and other public services.

The development of Teletel is relying heavily on the use of Transpac, the French national packet switching network. This in turn has created an opportunity to develop the system's Distributed Gateway Architecture, enabling remote hosts serving many different applications to be connected.

More than a score of hosts are operating in the framework of the Vélizy test (IBM, Data General, Honeywell Level 6, Hewlett-Packard, DEC, etc).

These are located throughout France where they can be accessed as easily by participants as if they were on the spot.

The Vélizy Centre comprises seven Honeywell Level 6 microcomputers. The central configuration itself supports up to 500 user ports (100 on each of three Level 6s) with a response time of better than two seconds for 98% of accesses.

Further expansion of the ports in increments of up to 100 can be achieved by adding extra Level 6s.

There are currently 20 service providers at Vélizy. These include a group of local newspapers which have joined forces to edit



BRIGHT... "Nobody can afford to sit back in this business".

and publish a composite "electronic journal."

Total orders for Minitel are now close to 600,000 units. The bulk of these are being allocated to the electronic directory programme.

Orders for this year amount to 300,000 units which French Telecom has split between Matra (200,000) and Philips' French subsidiary TRT/Radiotechnique.

France has excellent reasons for applying videotex to improve its telephone directory enquiry system.

Costs of printing extra phone books to meet the requirements of fast increasing subscribers are no longer offset by advertising revenue.

With two million lines now being connected each year, the printed directories are quickly obsolete — hence heavy demands for directory assistance and a bigger financial burden on the network.

The technology used for directory terminals is the same as for the Vélizy Teletel trial. Both "white" and "yellow" pages are available.

**With two million lines now being connected each year, the printed directories are quickly obsolete — hence heavy demands for directory assistance and a bigger financial burden on the network**

So far 10,000 subscribers have been connected in Brittany, rising to 300,000 by the end of next year when a further 200,000 will also be connected in the Paris area, around Marseilles and in Picardy.

The Brittany directory's database covers 1,200,000 subscribers and can handle 120 requests for information simultaneously. So far calls from 500 subscribers will be handled at any one time.

French Telecom and the industrial groups closely involved in developing Teletel are confident they can capture worldwide markets for their products. The first orders are already flooding in.

Brazil is at present the scene of the first full-scale community venture by a developing country to test Teletel.

The trial, which initially involves 1,500 homes and business offices in Sao Paulo, uses 1,000 television screens with dedicated

and 500 Minitel units supplied by Matra.

Thanks to an order last year for 560,000 terminals from Tymshare in the US, Matra is strongly established in the Teletel export market.

The French firm, now under State control, is supplying 50 editing terminals for the Sao Paulo videotex network.

France's Steria company, which makes the Videopac package already operating at Vélizy, supplies software for the Sao Paulo trial. Steria is also equipping Greece's Bank of Thessalia, Minnesota's First Bank System of Minneapolis and Iraltel in Milan with the same system.

The Brazilians have given responsibility for packet switching of data in Sao Paulo to the French SESA firm.

It was SESA which set up the French national network, Transpac. Now it is scooping all the big international orders for networks of this type. Customers include Australia, New Zealand and Luxembourg.

SESA is also to install Brazil's national network for the Embratel

Telecommunications Authority this year.

But in spite of these successes, the French are not resting on their laurels. Roy Bright, an Englishman who played a leading role in the promotion of Prestel, says: "Nobody can afford to sit back in this business."

Bright, now managing director of French Telecom's international marketing subsidiary Intelmatic, adds: "Teletel and Prestel are not alone. Canada is competing with its Teletel system, Japan with Captain; and West Germany with Bildschirmtext."

"The stakes are high. Each country hopes to win a substantial share of a world market which could be worth hundreds of millions of pounds over the next few years. Thanks to the performance of Teletel, French videotex technology is well placed in this contest."

## ANGLO-FRENCH TRADE

The installed base is only one-sixth of Britain's, but there are signs of a breakthrough... Jack Gee reports

# France — land of opportunity for UK computer manufacturers

FRANCE's slowly developing demand for computers could offer golden opportunities to British manufacturers if they aim for the most promising slots of the market and organise their advertising and distribution intelligently.

Although the two countries' populations are almost equal — 56 million in Britain and 54 million in France — the computer has been tardy in making its impact on the French side of the Channel.

At the end of 1982 France's installed base, ranging from the mainframe to the micro, totalled only 183,000 compared with Britain's 1,155,000.

But signs that a breakthrough might be at hand in France are visible in a spectacular 263% growth in sales, which rose last year by 116,000 installations. In 1982 sales of 585,000 represented a growth of 105%.

France has shown much less enthusiasm for the computer than its European neighbours. IBM, which expects to sell 500,000 of its Personal Computers this year, believes that it might place only 7,000 in France despite a massive and costly advertising campaign.

The reluctance of the French market to respond enthusiastically to the microcomputer can be explained in large measure by the absence of a domestic manufacturing base.

The only French manufacturer of any real significance is R2E, a subsidiary of Cii Honeywell Bull. In 1982 the 10,000 micros made by R2E accounted for over half of all micros produced in France.

But R2E's position on the French market was uncertain as the State-owned group prepared to absorb this offshoot into its office automation division. Another sign of the writing on the wall is R2E's decision to shut its American subsidiary.

Apart from R2E the other French micro makers are all small fry. Leonard is the runner up with only 2,500 machines last year, followed by Goulet with 2,000 and a handful including Syntex, Darley and Matra-Tandy which each produced 1,000 machines or less.

Thomson-CSF will start making Fortune's Micromega at a factory in Brittany within a few weeks, and hopes to push production up to 600 units a month by next year.

At between 70,000 francs (£7,000) and 170,000 francs (£17,000) according to its configuration, the Micromega looks expensive. But Thomson believes it will fit into a slot between costlier minis and the Apple and IBM personal computers.

Gordon Curran, a director of Intelligent Electronics Europe, a market research firm with offices in London and Paris, is confident that profitable pickings await British computer makers on the French market.

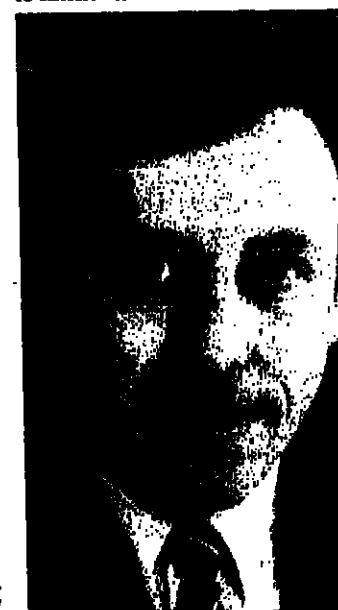
Curran says: "The British computer industry has excellent opportunities for exporting to France thanks to its strong domestic production and marketing base. However, until now none of our

firms has achieved the same success in France as at home. Their problem is the choice of the correct marketing strategy."

Last year Britain sold 953.8 million francs (£95 million) of computer products in France, according to the French Ministry for Foreign Trade. The French sold only 654.3 million francs (£65 million), leaving Britain with a favourable trade balance of 299.5 million francs (£30 million) in information technology.

Visible proof of the keen interest among the French in British products came from our Embassy in Paris. The Commercial Department reports that over several months last year computers were the subject of half the market advisory reports ordered by French businesses from the Embassy.

Prospects for penetrating the French market vary from one segment of the industry to another. In mainframes, where the French government conducts an unbiased policy of favouring State-controlled Cii-Honeywell Bull, ICL faces an uphill task in trying to extend its market share.



TURNER... "It would not be in France's interests to exclude foreign manufacturers."

David Turner, joint managing director of ICL France, says: "We now have 4.5% of computer sales in France. We are particularly strong in the North with 10%. But in Paris, where the government orders are placed, we get only 1%."

The ICL France chief admits that the State's preference for Cii-Honeywell Bull is a handicap. But he emphasises: "It would not be in France's interests to exclude foreign manufacturers. The French have to ensure that their own companies remain competitive. The long-term solution to France's balance of payments problem is exports. If they lose their competitive edge, they will endanger their overseas business."

Although still puny in France compared with those of IBM and Burroughs, ICL's market is beginning to expand. After three years of relative stagnation, its orders grew by 47% in 1982. This year it expects a 23% rise.

ICL has no plans to manufacture in France. Last year it earned half its French revenue from maintaining and renting computers and providing software services.

ICL is also co-operating closely with Cii Honeywell Bull in efforts by European manufacturers to develop common standards and operating protocols.

Thanks to its firmly established position on the French private market, ICL is unlikely to suffer from the new austerity programme and appeals by President Mitterrand and his ministers to "buy French."

But British firms with an eye on the French market must remain alert for a change in the objectives of the Filibre Electronique, the ambitious national plan to raise France's electronics and computer industries to the same rank as Japan's by 1986.

Jean-Pierre Chevenement, Minister for Research and Industry until the government reshuffle in March, urged across-the-board development for all segments of these industries. But now, with less cash available for investment, Mitterrand and the new Industry Minister, Laurent Fabius, might decide to concentrate on areas of production where the French are strongest, such as software and small terminals.

Britain is particularly well placed to exploit its experience in microcomputers for the hobbyist. Last year Sinclair captured 70% of the French market for family micros with its ZX81. This was well ahead of the Commodore Vic 20's market share and the 4% carved out by the Texas Instruments 99.

Sinclair did even better in terms of market share in France than in Britain where it took 40%.

Paying tribute to Sinclair's achievement, a British competitor said recently: "Sinclair has opened up the French market. I owe it to Sinclair's Zilog 80 that my own sales are now going well in France."

Rair, which is launching its personal computer in France simultaneously with other European markets, is well satisfied with the results of its Black Boxes since the opening of a French subsidiary in 1982. Rair has set itself a target of 25 million francs (£2.5 million) sales in France for 1983.

Hans Delange, general manager of Rair-France, says: "We have started well thanks to a big advertising effort. Turnover is now 500,000 francs (£50,000) a month. Sales which are currently running at 30 machines a month ought to rise to 50 by the autumn. We might even begin to assemble our machines in France soon."

Systime's small office in the Paris suburbs is not seeking to sell to all and sundry. But the British firm has found a profitable slot in the laboratory market, an area which, oddly enough, the



CURRAN... "Excellent opportunities for Britain."

French themselves are neglecting. Plessey Microsystems is another newcomer to France. Although it has been registering substantial orders on the French market for the past two years, it has only just opened a sales office at Trappes, near Paris. Marketing manager Norman Williams says: "We want to put our mouth where our money is."

Plessey has apparently taken a number of French Defence Ministry orders in joint ventures with Matra, Thomson-CSF and Electronique Serge Dassault.

Williams says: "Our equipment is being put to some particularly rugged uses."

British software firms enjoy a high reputation in France. But they will need to follow the example of Systime in seeking openings in specialised fields. Competition is tough in France where national software companies

orders in joint ventures with Matra, Thomson-CSF and Electronique Serge Dassault.

Williams says: "Our equipment is being put to some particularly rugged uses."

British software firms enjoy a high reputation in France. But they will need to follow the example of Systime in seeking openings in specialised fields. Competition is tough in France where national software companies

up the European league. Newcomers from across the Channel must be particularly painstaking with their market research and careful in their choice of distributor.

Curran of Intelligent Electronics says: "Too many sales chiefs fly over from London without bothering to study the size and potential of the market. They give their distribution to the first friendly Frenchman who wines and dines them at a smart restaurant."

Distribution of family computers is fraught with pitfalls in France. In contrast with chains like Curry and Dixon's which sell through more than 400 outlets in Britain, the biggest group of French shops selling computers is FNAC with only 15 retail points.

Based on a well organised mail order service, Sinclair has done exceptionally well in France. Its sales network is likely to improve with the start of manufacture at Times-France's factory in Besancon. Sinclairs ought soon to be available from thousands of French tobacconists, newspaper shops and "les drugstores".

The shortage of retail outlets is probably the most daunting challenge for British firms hoping to renew in France the successes scored on their home ground and in other markets. But the absence of serious French competition in family computers, except for Thomson's new TO-7 (a top seller in the FNAC discount stores), is an invitation to British companies to move in.

However, Curran warns: "A local French distributor won't risk much money on advertising. The British firm has to take this in hand."

"The size of the potential market makes it worthwhile. And it is wise to design advertisements specifically for French rather than copy an English original."

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# Data Protection Bill—would it have made a difference?

The Bill is dead, but the issues it raised are alive and well. Michael Wood looks at the effects of similar laws

THE Data Protection Bill got to the House of Commons, having passed all its stages in the Upper House. It seemed very likely to become law before the end of the summer, if the general election had not intervened.

The legislation was intended to comply with the Council of Europe Convention on data protection, which the government intended to ratify in due course.

Almost all users of computers and information technology would be affected by a new law. Other countries already have regulations, with varying impact on data processing and the individual citizen.

Three parties have an interest in data about individual people, called personally identifiable information. The individual concerned (the data subject) clearly has some interest in the data held about him or her. The person who holds the information (the data user) also has an interest, otherwise it would not be kept.

The fact that there is a third party is often overlooked, but society has an interest in personal information of all kinds.

The information might be needed for public health reasons, or to help in providing appropriate educational opportunity, or for many aspects of welfare.

Inevitably there will sometimes be a conflict between the interests of the three parties. This conflict is most clearly evident in police systems. Naturally the criminal

would prefer it if the police could not use information technology with files of personal information. On the other hand, law-abiding citizens want the police to catch the criminals. Conflict arises most often where the interests of society are at odds with those of a particular individual.

All sorts of information about people could be personally identifiable. The information need not include an individual's name or address. It may be possible to identify the individual indirectly, most usually through some kind of index or key. If you know certain unusual features about an individual, then it might be possible to spot these details in a collection of anonymous profiles. You would then be able to deduce other private information about that individual.

The answer to this problem is to depersonalise as much data as possible, especially when it is held

only for statistical and research purposes. In the published Census data, particular care is taken to eliminate the possibility of making deductions about private individuals.

Data is only published about reasonably large groups. The information about a particular group may be statistically grouped if there might be an individual with very peculiar characteristics in it.

The kinds of information that people regard as sensitive vary from time to time and place to place. It is very much a matter of culture and background. . . . People are more willing to reveal information about themselves when they perceive an advantage in doing so

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All Swedes have a personal number which they use as a means of identification. You see people's own number written up in their office, perhaps on the wall board. The number starts with a person's date of birth. It also has a town number, and a serial number. The numbers are used very openly, perhaps because there are some common surnames in Sweden. Erikson in various spellings occupies about half the phone book. The Swedes are not sensitive about their ages, unlike most British people.

On the other hand, the Swedes are particularly sensitive about nationality. Perhaps this is linked with their traditional neutrality. The Data Inspection Board only allows nationality to be held on personnel records as one of three classes, Swedish, Scandinavian (because there is a common labour market) or Other. You would not be allowed to keep British on such a file, even if it were true.

Many of our European partners do not regard a person's name and address as a sensitive item of information. They are genuinely puzzled by the outcry here about public registers of adults rather than public registers of children, like the UK Electoral Register, but complete. The one in Sweden is operated as a Parliamentary monopoly. Data users who need to use people's names and addresses get them from this public register.

The legislation in four European countries covers legal persons as well as individuals. So in Norway, Belgium, Luxembourg and Austria details about companies and other corporate bodies are protected, in much the same way as personal data. This means that most commercial systems would come within the scope of the law.

Another aspect is that in some countries, notably the Federal Republic of Germany, the law covers manual files as well as computer files. This has the merit that it concentrates attention on the kind of data and its uses, rather than the technical means used to store or process it.

About 30 countries now have some kind of regulation concerning personal information handling. Overseas experience can be a valuable indication of the way things might develop here.

The first noticeable impact has been a reduction in the kind and quantity of data held. Lots of doubtful data has been eliminated. For example the credit reference bureaux in Sweden record only debts that have been proved against an individual in court, not those simply reported by traders.

Some files have been eliminated completely. The major impact has been felt in government systems. New techniques have been adopted to identify authorised users at terminals.

Most well-conducted commercial systems had been little affected. A striking feature is the change in attitudes. System designers think more about the data subject and his or her interests. They may have to justify their proposals to the Data Inspector.

There is a refreshing openness. One credit reference bureau routinely prints all references in duplicate. One copy goes to the trader "X" and concerns a citizen "A". The other copy is addressed to "A" and says "X" enquired about you and this is what we told him. People know this is the way the system works, so they don't ask for their own details. They know they will get a copy when their record is accessed. It makes



for great economy in running the system.

Incidentally, overseas experience is that few individuals ever exercise their right to see their own records. Similar rights under the Consumer Credit Act are hardly exploited in the UK.

A feature of most legislation is a demand for adequate security measures. The system must be auditable. As a data user you need to be able to show who was allowed to access confidential data and when.

The UK legislation was fairly modest in its aims. The indications were that the application of the law was to be very gentle, certainly at first. The government's declared intention was to minimise the costs.

The key person in the new arrangements was a Registrar. Users of automatic systems holding personally identifiable data would have to register such systems. Registration implies compliance with data protection principles specified in the Bill. The Home Secretary said in the Commons that registration would be a simple process. It would involve paying a small fee, and answering perhaps six simple questions.

To recap the data protection principles, they were based on those laid down by the Younger Committee. In summary, they require that data is:

- obtained and processed fairly and lawfully;
- used only for one or more specified and lawful declared purposes;
- is accurate and kept up to date;
- adequate, relevant and not excessive;
- not kept longer than is necessary;
- not disclosed or used in a manner incompatible with the specified purposes.

The data subject is given new rights. The individual data subject is entitled:

- to access data that relates to him;
- where appropriate to have data corrected or erased.

These principles were modified in the Bill. There were various exceptions to the right of access. For example police intelligence files would not be subject to access rights. Clearly such access would nullify their value. The data subject's right to have data corrected had to be exercised through the courts. An individual had the right to be informed if he or she was a data subject of a particular system.

Some interesting details have emerged. One of the most significant for users is that sole traders would be regarded as individuals. Details about them would be subject to the law. This implies that almost every sales ledger system might have come within its scope, and therefore needed to be registered.

The Bill identified three classes of personal information. First there was factual data. Second were matters of opinion. Both these classes came within the scope of data protection and subject access. The third kind of data was an indication of the intentions of the data user towards the data subject. This was excluded from the scope of the measure.

Only a handful of the many amendments proposed in the Lords were successful, and it is clear that government intended the measure to pass unscathed through the Commons as well.

Finally, the Bill imposed a security requirement on data users. It said: "Appropriate security measures shall be taken against unauthorised access to, or alteration, disclosure or destruction of, personal data and against accidental loss or destruction of personal data" (Schedule 1, Part 1, 8.)

Most organisations would claim that they have adequate security measures. Apart from some financial and military systems very few systems have adequate audit trails. Few data users could demonstrate that they have complied with this security requirement at all times.

Michael Wood is with the NCC's Privacy and Security division.

# Why telecomms networks may meet the dinosaur's fate

Too many have too little brain, too much muscle and must be restructured says one expert. Donald Kennett reports

MANY current telecommunications networks are dinosaurs with too little brain for the huge amount of muscle in them.

This was the view put to the Institution of Electrical Engineers' Networks 83 conference in Brighton by Ake Knutsson from the Swedish telecommunications manufacturer L. M. Ericsson. Knutsson said that if they were to avoid the same fate as the dinosaurs, networks would have to be restructured into an intelligent and non-hierarchical form.

Hierarchical networks were inherently inefficient in dealing with overloads, he said, so the network tended to collapse precisely when it was most needed. In a society that was becoming increasingly dependent on telecommunications this was unacceptable.

The time was now ripe for planning more flexible and resilient networks and a good starting point was to implement automated network management and adaptive routing systems. The microcomputer revolution had made this economically and technically possible, but the last remaining obstacle was conventional thinking among policy makers.

The major costs of the changes would lie in the control hardware,

in forming the new team to be responsible for the network as a whole and in the administrative consequences of running a more complex network.

Benefits would come from decreased vulnerability, increased efficiency, increased revenue and goodwill, and increased information to support the maintenance and planning functions.

Savings of 10% to 15% on design costs had been reported for a long distance network in the US and 7% on trunk circuit provision for a tandem network in a large city by implementing non-hierarchical routing, Knutsson said.

These opinions were echoed by Osamu Jimura of Nippon Telegraph and Telephone, whose paper described Japanese plans for supporting the information-intensive society of the future.

NTT was planning to reduce the number of levels in its exchange hierarchy from four to two, Jimura said. Total exchange costs were lower with fewer levels, because a smaller number of exchanges were involved, but transmission costs were lower in a hierarchical network because of the savings on trunk lines.

The two configurations were currently similar in overall cost,

but as traffic increased and transmission costs fell with the development of optical fibre systems, the balance would swing heavily in favour of the non-hierarchical network. Decentralising the transit switching operation (the upper layer) would also reduce its vulnerability.

The transition from the separate data, facsimile, voice and video networks that are either running or being installed now to the Integrated Services Digital Networks that telecommunications authorities everywhere are planning for the future is the subject of a study now being conducted by NTT.

Detailed decisions on the transition strategy are to be made on completion of the study, but broadly the strategy is to keep video communications services on a separate broadband network while facsimile and data transmission are integrated on to a new digital voice network.

This is partly because the data rates used by the broadband services, 1.544Mbps-per-second and 722Kbps, are incompatible with the ISDN speeds based on 64Kbps — the internationally accepted data rate for digitised speech transmission.

But the broadband services will

be integrated into a Phase II ISDN at a later stage. Digital exchanges for the transit network started going into service in December and are to be installed in increasing numbers from this year on. Digital subscriber exchanges are also going into production which are designed to use repeaterless optical fibre links to serve subscribers for at least 15km around — the area now covered by a toll exchange and a whole clutch of local exchanges.

A trunk network of monomode optical fibre that will operate at a data rate of 400Mbps is being installed from one end of the country to the other to link 30 cities by the end of next year. Short distance optical fibre trunk links operating at 100Mbps and 32Mbps were installed in 1981, superseding the coaxial cable based digital systems operating at up to 400Mbps, in use since 1977.

The facsimile network which began on a limited scale in Tokyo and Osaka in late 1981 is to be extended to other major cities by early next year and to all towns by the end of 1986. It is popular because of the number of characters in the Japanese language and is expected to spread from businesses into homes in the future.

The facsimile network can deliver messages to multiple addresses and can convert from one kind of transmitter to another. In Phase II ISDN, subscriber terminals of various types will be linked via a terminal control unit through the subscriber exchange to transit exchanges for broadband, packet switched or circuit switched transmission, from there to communications processing centres for functions such as code or protocol conversion, or store and forward delivery of voice or picture messages and on to information processing centres for database access and other services provided independently of the network.

To test the operation of the ISDN and the kinds of new services it will support, NTT is building a trial network in Tokyo which will support 750 non-telephone terminals (data, facsimile and video) and 250 digital telephones, as well as 9,000 conventional analogue telephones, linking them to processing centres via optical fibre cables. The trial is due to start next year and is expected to become the driving force behind the development of new information services in Japan.

The third phase would be to evolve the separate core networks into a single integrated one. K. V. Burton and K. Giridhara-

gopal of Bell Northern Research in Canada described a three-phase evolution towards the ISDN. The goal of the first phase would be to enhance the capabilities of the central parts of the various existing networks by providing value-added services. These would generate more traffic and lower the cost of connections by making the networks more efficient.

Potential value-added services that Bell was considering included voice to text and text to voice conversion, voice and data teleconferencing, text messaging and videotext.

The second phase would provide simultaneous access to voice, data and network control interfaces from the existing two-wire copper exchange lines. This would give the appearance of an ISDN to subscribers and information providers before the real ISDN was completed. It would be achieved first with hybrid analogue and digital techniques and later with digital multi-channel circuits, both as recommended by CCITT (the International Consultative Committee on Telegraphy and Telephony).

The third phase would be to evolve the separate core networks into a single integrated one.









# MARK WEINBERG'S SUNDAY

By the time he was thirty, Mark Weinberg had created Abbey Life. Today, as the founder of Hambro Life, he has been responsible for revolutionising life assurance in this country.



After a highly organised week in town, we have a completely unstructured Sunday. It's a day for sleeping late and messing around on our farm. I like to

## TIMES

get a couple of sets of tennis and some riding in if I can but mostly I just potter around and take the opportunity to spend an hour or two with the children, of whom I don't see enough during the week.

Our farm is managed by a neighbouring farmer so I always have a chat with him in the morning discussing how things are going and I also spend some time with Edgar who looks after the vegetable garden and our wild ducks. He loves the country and has never lived more than a mile from his present home, so it's nice to have half an hour with him, seeing the countryside through his eyes.

But the day starts with the papers. We get up fairly late so one of the disadvantages of living in the country – not getting the papers delivered till 9.30 – doesn't really bother us. We're unlikely to be up by then, and we lie in bed reading them for about 45 minutes.

The beauty of Sunday is the chance to get heavily into the papers and catch up on what one missed in the week. On weekdays there's a certain amount of reading I have to get done each day and after that I read the papers more or less according to chance. But Sunday I can pay much more attention to them, reading the news and features in greater depth and also devoting time to the arts and leisure sections.

With The Sunday Times I start with page one and then turn straight to the business section – even on Sunday it's a bit of an obsession. Then I try to go from page two through to the centre spread fairly fast, picking out stories I particularly want to read before I get distracted. But the little news features

before the centre spread always seem to pull me in and thwart my attempt to get an overview. There's always a couple on science or medicine that I find especially interesting.

The thing I like about the centre spread is the way the main issue of the week is developed in different ways, partly in the leader, partly in the article on the opposing page and sometimes in another comment piece as well. It seems to pull it all together somehow.

We don't go out on a Sunday but we quite regularly have people round for lunch, which is seldom before 1.45 and often as late as 2.15. I usually manage to snatch another 15 minutes' reading time just before lunch.

One of our other interests on the farm is our wild ducks which live round a bit of water near the house. We've wired in the area against foxes and in the last couple of years I have been trying to introduce a wider variety of fowl. We've got about 25 types now and have succeeded in breeding from a number of them.

I tend to treat the main newspaper and the business section as a separate paper from the rest. I'll pick up the review and colour supplement after lunch or settle back with them in the late afternoon or evening. I often read the main piece in the review in a concentrated session in the evening.

I very much enjoy the supplement and think it contributes a lot to Sunday. I appreciate the quality of photography which is a great contrast to the nasty, flimsy feel of the traditional American colour supplement.

I must be an advertising manager's dream as I also have a soft spot for the ads and read the supplement as much for them as for the editorial. This makes me a menace as far as my secretary is concerned because I'm likely to come into the office on a Monday morning with three or

four coupons I've cut out and ask her to send off for the products.

On Sunday evening I start to change gear, worrying about the week ahead and thinking that if I don't organise for Monday morning I'll be in a mess.

There's really no chance that I'll have read everything I wanted to read in The Sunday Times so I keep it for the rest of the week – the trouble is that the next Sunday usually arrives before I've finished it.

In a recent survey by the New Business Research Consortium, several interesting facts emerged:

◆ The Sunday Times is read by more businessmen than any other newspaper.

◆ The Sunday Times is the only quality Sunday to have increased its businessmen's readership since 1980.

◆ The Sunday Times has market leadership in most of the important occupational areas, including: marketing, 43.5%; computing, 32.5%; finance and accounting, 38.5%.

◆ The Sunday Times has more readers in all the following categories: top income bracket, 51%; 2-car families, 36%; credit card ownership, 35%; value of shares £10,000+, 53%.

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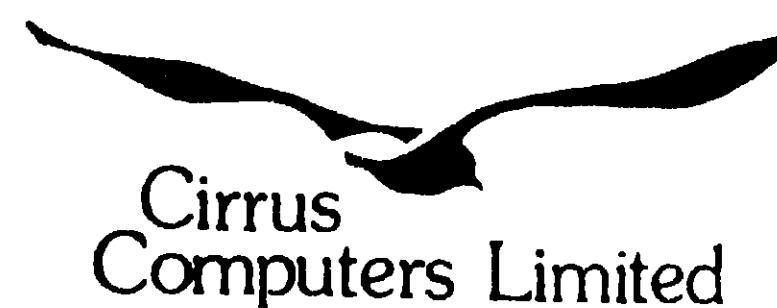
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Systems Designers  
Systems Managers  
Computer Operators

Thames Valley — Analysts  
Senior Programmers

At least 5 years experience in a general commercial environment is required and qualifications in engineering or accounting would be particularly desirable. Operators and programmers must have experience of Perkin Elmer 3200 range computers running OS/32, Reliance and Cobol.

Salary levels will be commensurate with experience:

Saudi Arabia: to £36,000 p.a. tax free plus free accommodation, car allowance and free health care. 2 year contracts.

Thames Valley: to £17,000

If you are confident about accepting one of these challenging positions, please write enclosing a C.V. to:



SAMECON

The Personnel Manager,  
Samecon,  
Harleyford Marina,  
Marlow,  
Buckinghamshire.  
Tel: (06284) 74245

All replies will be treated in the strictest confidence.

Offices in: Riyadh, Hamburg, Philadelphia, Marlow

## RECRUITMENT CONSULTANCY

In recent years, as a result of maturation and market pressures, the recruitment industry has undergone a necessary transformation. This has resulted in the emergence of a number of professional recruitment organizations who provide a genuine consultative service to their clients. Consultants who work for these companies work hand in glove with the major users, manufacturers and software houses in the U.K. They are exposed to the latest technology, both software and hardware and have an opportunity to develop their career in the direction of their own talents.

McCourt Cousins Ltd. is foremost among the ranks of these professional recruitment organizations. To assist in launching our London office we are seeking to employ additional consultants who wish to influence and contribute to our growth and development. We will employ self-starting individuals with the ability to motivate themselves. Experience could have been gained in a variety of backgrounds but it is likely that successful applicants will have a good academic background and a great deal of ambition. Our remuneration package is extremely high.

### To the D.P. professional:

All consultants in McCourt Cousins Ltd. have a D.P. background. You will work closely with clients who are involved with a wide variety of advanced systems utilizing the latest software and hardware. You will develop your interpersonal and commercial skills without losing technical abilities.

### To the Salesman:

McCourt Cousins Ltd. is a market-leader in Sales recruitment. You will work in a market you know whose people are eager for your product. If you are successful you will earn a great deal of money.

### To the Recruitment Consultant:

We are young, very successful and we need people who can contribute to our growth. In return we recognise that you need a career and the opportunity to work in a flexible environment which actually helps you to succeed.

If you would like to discuss a career as a Recruitment Consultant with McCourt Cousins Limited, phone Kevin McCourt or Andrew Cousins on the numbers listed below.



McCOURT COUSINS LTD.

27-29 Grayfriars Road,  
Reading, Berkshire  
Telephone (0734) 595346 (24 hours)

Chesham House, 150 Regent Street,  
London W1R 5FA  
Telephone 01-439 6288

# Industrial OEM Sales Executives

Key positions with a high technology company that manufacture the most advanced range of micro-computer systems in the World.

BASE SALARY c£14,000  
+ Bonus + 2 Litre Car

### LOCATIONS

— London and the Home Counties  
— South West England

Our Client has an outstanding reputation as a manufacturer of highly specialised and sophisticated microprocessors for real-time applications. They are designed especially for the OEM Market with 'open' architecture where features of the products are proven reliability, flexibility and innovation, guaranteeing a high level of commitment to the systems now and in the future.

As a result of their continuing success, they now wish to recruit sales executives who must possess a proven sales track record to date, coupled with a practical knowledge of integrated microprocessor systems. An understanding of the industrial OEM marketplace is of paramount importance. Candidates must also be able to demonstrate the enthusiasm and commitment necessary to achieve career progression inherent in a dynamic American Corporation and reside in one of the geographical locations mentioned.

Remuneration is by way of a high base salary plus a sales incentive bonus scheme based on realistic annual quotas. A 2 Litre company car, full expenses and usual large company benefits are also provided. The company policy of internal promotion has created these opportunities to join a unique environment where advanced microcomputer technology is driven by an enlightened and young management team.

For a complete confidential discussion, contact Richard Champion on 021-236 1999 — 24 hour answering service or on Hagley 884166 evenings and weekends.

## Cathy Tracey & Associates Ltd

PHOENIX HOUSE  
1-3 NEWHALL STREET  
BIRMINGHAM B3 3NH  
TEL: 021-236 1999, TELEX: 825264

SILBURY BUSINESS CENTRE  
356 SILBURY BOULEVARD  
CENTRAL MILTON KEYNES MK9 2LR  
TEL: 0908 604848, TELEX: 825264

## MANAGEMENT & EXECUTIVE SELECTION

telephone 01-637 9611

## ENGINEERS

Our client has established the highest reputation for the manufacture of increased performance cost reducing peripherals. Fourteen years' commitment to R+D has maintained their position as an innovative market-leader. Now, in addition to optical disc technology, the release of a processor is imminent thus offering total systems to the market-place.

Significant growth results in requirements for several field engineers in London and Home Counties. Candidates will possess three years' experience maintaining mini or mainframe systems and/or peripherals and substantial customer skills. This is a career opportunity offering an excellent salary and benefits package, on-going training and prospects towards support and management.

For an informal discussion ring Chris Bond or Phil Joice on 01-637 9611

Suite 201/6, Albany House, 324 Regent Street, London W1R 5AA. 01-637 9611

MANAGEMENT &  
EXECUTIVE SELECTION





## Permanent Vacancies

<b>PROGRAMMERS</b>		<b>ANALYST/PROGRAMMERS</b>
<b>PDP 11 RSTS/RSX BASIC +/MUMPS</b> c.£9,000 West End Ref: RC302		<b>PDP 11 RSTS/E BASIC +/+2</b> c.£10,000 West End Ref: RC306
<b>Honeywell GCOS COBOL</b> c.£9,500 West End Ref: RC303		<b>IBM DOS/VSE COBOL CICS</b> c.£10,500 West End Ref: RC307
<b>IBM OS/VS COBOL</b> c.£9,500 West End Ref: RC304		<b>IBM DOS/VS COBOL</b> c.£10,500 Central Ref: RC308
<b>IBM System 38 RPG</b> c.£10,000 West End Ref: RC305		<b>IBM DOS/OS COBOL</b> c.£11,000 West End Ref: RC309
<b>Mini COBOL</b> to £12,000 City Ref: YY117		<b>RPG (COBOL an adv)</b> c.£10,000 N. London Ref: YY114
<b>ICL COBOL</b> £ Neg. City Ref: YY118		<b>IBM System 38</b> £Exc + mort. City Ref: YY115 (Snr. post)
<b>MICRO BASIC, CPM</b> c.£10,000 Central Ref: NW901 (Tutorial post)		<b>PDP 11 BASIC + or AIMS</b> c.£12,000 City Ref: YY120 (Banking)
<b>SENIOR APPOINTMENTS</b>		<b>IBM System 34</b> £Exc + mort. City Ref: YY121
<b>Project Leader - Banking</b> c.£15,000 City Ref: YY119		<b>IBM System 34</b> £Neg. Central Ref: NW902 (DPM Designate)
<b>Comms. Specialists</b> to £16,000 Central Ref: RC310		<b>IBM Systems Analyst</b> c.£12,000 City Ref: YY122 - Insurance
<b>PDP Consultant</b> to £17,000 City Ref: YY123 (Mfg, Financial)		

<b>OPERATIONS</b>	
<b>IBM 4341 - MVS/JES2 TSO CICS</b> to c.£10,000 West End Senior Operator (Ref: OPS 1113)	
<b>IBM 3033 - MVS/JES2 NCCF ACF/VTAM CICS IMS</b> to £10,000 Central Senior Operator (Ref: OPS 1114)	
<b>IBM 4331 - DOS/VSE CICS VSAM</b> to £10,500 Central Senior Operator (Ref: OPS 1115)	
<b>IBM - DOS CICS VM-CMS BSC PROTOCOL</b> c.£9,350 + mortgage City Network Support (Ref: OPS 1109)	
<b>IBM 4341 - VM DOS/VSE CICS</b> c.£7,500 + mortgage City Operators (Ref: OPS 1110)	
<b>IBM 4341 - VM DOS/VSE CICS</b> c.£6,700 E. London Operator (Ref: OPS 1118)	
<b>IBM System 3/15D &amp; System 38</b> c.£8,500 N. London Senior Operator (Ref: OPS 1118)	
Call us now or send the coupon to: Knight Computer Services Ltd. Recruitment Division Free Post 16 W1E 8JZ.	

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## SALES EXECUTIVE DISK DRIVES

to £15000 base + CAR

\* Early management prospects  
\* Growing product range  
\* Marketing responsibilities  
\* UK OEM market

The UK division of a major Japanese electronics group, our client has recorded staggering growth across all its product areas. It now aims to repeat its success in the OEM disk drive market where numerous enquiries and large initial orders reflect high interest for their quality, advanced product.

You will build upon this early success and further develop sales throughout the UK; you will also recommend marketing activity and contribute to future strategic planning. As the business grows, you could assume responsibility for new sales recruits as well as for new products in the peripherals area.

A successful background in computer peripherals is essential, ideally supported by a strong technical understanding. Additionally, you will need to be self-motivated, a 'team-player' and keen to progress into an early management role within a committed, growth-orientated environment.

The exceptional benefits package will include free family BUPA, twice yearly bonus, life assurance scheme and additional staff benefits.

For further information, telephone Paul Child on Windsor (07535) 56155 or write to Kramer Westfield Associates Ltd, 23 Victoria Street, Windsor, Berkshire, SL4 1HE.

*Kramer Westfield*

(3688)

## Freelancers . . .

. . . in the North of England and Scotland who are available now or in the near future are invited to contact me, Peter Moore, to discuss a variety of interesting and rewarding assignments throughout the UK and overseas.

**P. E. Computer Services Limited**  
 Winchester House, Fountain Street, Manchester M2 2EF. Tel: 061-228 2776



## CONTRACTORS

RTL are seeking experienced personnel in the following categories

**VME Cobol - Programmers/  
Team Leaders**

**TPMS & IDMS - Designers**

**System 25 - Specialists**

**CICS - Specialists**

**System Builders/Quality  
Controllers**

**RATES FROM £250 - £500  
PER WEEK**

We offer fixed term contracts of varying duration involving challenging projects in several locations. Every assistance is offered to 'first time' contractors in setting up their operation and administering business affairs.

For further details of these contracts please contact John Read on 0734-788213 or send full CV to:



**RTL Software Services Limited**  
 Wingmore Lodge, 2 Rose Street, Wokingham,  
 Berkshire RG11 1XU. 0734 788213

(3688)

Senior Systems Designers/Consultants - up to £17,500 plus car

# You'll always find successful systems people in the same company: Hambro Life.

*"Where Hambro Life dares, other insurance companies usually follow."*

Daily Telegraph 16th April, 1983

*"Hambro Life set to beat home loan hitch."*

The Times 16th April, 1983

*"Hambro Life valuation - 19.5m surplus."*

Financial Times 20th April, 1983

*"Mark Weinberg, the man who shook up the British life insurance industry 20 years ago... is quietly plotting another revolution."*

The Money Observer, February, 1983

When a company's as successful as Hambro Life, it's plain for all the world to see.

If you've only read our recruitment advertising over the last few months, you will already know some of the facts:

We're the U.K.'s largest unit-linked life assurance company, with assets of over £1.8 billion, and a market value that puts us in the top 70 companies in the U.K. A record achieved in little more than a decade!

But just lately, the Press has been taking a lot of interest in what the future holds for Hambro Life now that we've formed a major unit trust group, acquired Dunbar (a prestigious banking institution) and forged links with the insurance giant, Guardian Royal Exchange. On top of this, we've just launched two major new products, and are now poised to step beyond the insurance and pensions business into the financial services and expatriate markets.

Breathtaking, yes. But also impossible without the flexible integrated computer systems which are at the heart of our Administration.

This enables us to react swiftly to all market and business needs.

And with so much extra activity sweeping through the company - it means that we now have need for more top

systems professionals to join our already sizeable and formidable team:

In fact, no matter how successful you are in your present job, involvement in a future like this must attract you to Hambro Life.

We are looking for experienced systems designers and project leaders at all levels:

**SENIOR SYSTEMS  
CONSULTANTS**  
- up to £17,500 plus car

**SENIOR SYSTEMS  
DESIGNERS**  
- up to £15,500 plus car

**SYSTEMS DESIGNERS**  
- up to £14,000 plus car

The job given to you would be determined by your ability, potential and the nature of your experience. Our systems team get firmly involved in a wide range of business activities. The current project list, for example, contains immediate product development work - including our recently launched life and mortgage products, our plans for the financial services and international markets, an on-line enquiry system for what is one of the largest life assurance databases in the industry, a micro-computer and software programme for Hambro Life's

top salesmen, a personnel project and a mortgage accounting system.

## Qualities

You should be a graduate with experience in large scale systems and a record of successful implementations which reflect the high qualities required.

Systems Designers should be good at systems analysis, and user liaison, while the Senior Consultants are likely to be, at present, project managers, good at co-ordinating a multi-disciplined team (you should also be actively involved in design).

It's worth adding that while we've placed a salary figure of £17,500 on the most senior jobs - we'll happily go beyond that, providing you can show you're worth it.

On top of salary and car, all appointments carry a first-class benefits 'package' which includes non-contributory pension, free life cover, BUPA, profit sharing and share option scheme - plus generous assistance with moving to Wiltshire.

Clearly, there's a lot more to systems at Hambro Life than we can crowd into an advertisement: so if you're interested, please send for our explanatory booklet, as well as an application form, straightaway.

## Hambro Life open day!

If you're in the vicinity and would like to meet some of us in person, we will be holding a special open day on Wednesday, 25th May in the Raleigh Suite at the Tower Hotel (close to Tower Bridge underground station). Just call in any time between 10 a.m. and 9 p.m.

Either complete and return the coupon to Bob Gill, Hambro Life Assurance plc, Hambro Life Centre, Station Road, Swindon, Wiltshire SN1 1EL. Or telephone Swindon (0793) 46700 (24 hour answer-phone).

Please send me your systems booklet and an application form.

Name \_\_\_\_\_

Address \_\_\_\_\_

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**HAMBRO LIFE**  
Security with a future.



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digital

## Programmers & Programmer Analysts

The United Nations Development Programme administers one of the world's largest multilateral funds for technical assistance to developing countries. Challenging opportunities exist for qualified programmers and programmer analysts in the Division of Management Information Systems to participate in the development of information systems in a wide range of application areas. A minimum of 3 years programming experience in one or more of the above languages as well as a university degree are required.

Individuals selected for this programme must have the ability to work well within teams developing a complex on-line system. Languages presently required are COBOL, BASIC, MARK II, and FORTRAN. A minimum of 3 years programming experience in one or more of the above languages as well as a university degree are required.

Three positions offer an excellent compensation package. Visa and relocation assistance will be offered where applicable. Only qualified applicants will be reviewed. For consideration, please submit a detailed resume to:

Director of Personnel  
UNITED NATIONS DEVELOPMENT PROGRAMME  
1100 United Nations Plaza  
New York, NY 10017 USA



UNITED NATIONS  
DEVELOPMENT  
PROGRAMME

Unilever Research Colworth Laboratory

## DEC Hardware Specialist

to work on new VAX installation  
negotiable up to £12,500; rural Bedfordshire

The Colworth Laboratory is the largest food research establishment in Western Europe. Around 1,200 people are employed at the site, which is superbly equipped and located on a large and attractive country estate in North Bedfordshire.

We are about to install a new DEC VAX 11/780, which will augment our existing equipment and the PDP 11's and PDP 8's already on site. Reporting to the Head of our Hardware Group, your task will be to integrate the VAX into the laboratory and develop an on-line system architecture. You will also be required to advise on all DEC equipment, including working on inter-system communications, system hardware and, to a lesser extent, system software.

You must be a graduate, ideally in a technical discipline, and have at least 3 years' DEC experience, including one year on VAX. Knowledge of all or at least some

of the following will be necessary - VAX system architecture, MASSBUS, UNIBUS, DECNET, VAX peripherals and the VMS interface to hardware.

Starting salary will be negotiable up to £12,500, depending on experience, and there is a car allowance of over £500.

Terms and conditions are excellent and include assistance with relocation expenses, where appropriate. Career development prospects are very attractive and are in the context of the whole Unilever Group.

For an application form, please write or telephone 015-623 1844 - 24 hour Answerphone, quoting ref. FV 376, to Brian Woodrow, Management Selection Limited, 17 Stratton Street, London W1X 6DB.

W

## Software Engineers

Somerset and Gwent up to £14k

Plessey Marine - an independent business within Plessey Electronic Systems Limited - is the main sonar contractor to the Ministry of Defence. Its Research Unit at Templecombe in Somerset and its Engineering Department at Newport in Gwent are looking for the following high calibre, degree-qualified people - preferably in electronics or computer science with at least 3 years practical experience using CORAL 66. Opportunities exist at all levels of experience and aptitude:

**Systems Analysts** to lay down the framework of a multi-processor design from customer requirements, and to communicate and control these designs during implementation.

**Software Systems Designers** able to develop their detailed software design concepts and lead technically a team of implementation programmers.

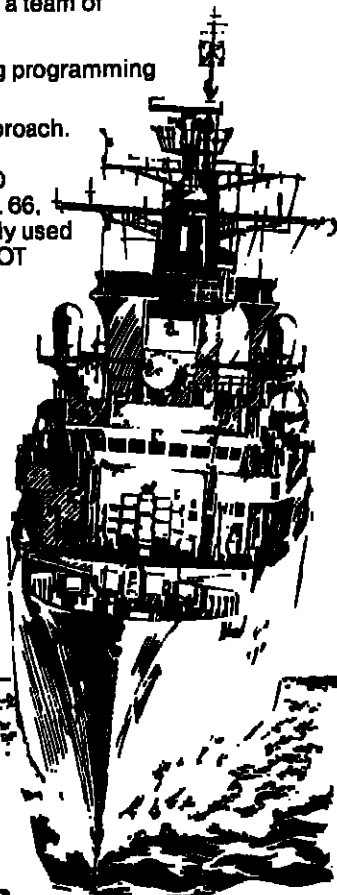
**Programmers** wishing to develop their existing programming abilities and level of design responsibility.

Software is developed using a Host-Target approach. The host computers are DEC PDP11 and VAX machines, supporting INTEL 8086 and TI 9900 microprocessors. Languages used are CORAL 66, PASCAL and ASSEMBLER, which are normally used in conjunction with a highly developed MASCOT design and implementation methodology.

First-rate working benefits include innovative training programmes and the job security of joining a successful company. A generous relocation package will be offered where applicable.

Please ring Peter Whitfield, Technical Resourcing Manager at Templecombe (0963) 70551 for an application form, or send a full c.v. to him at Plessey Marine Research Unit, Wilkinstroop House, Templecombe, Somerset BA8 0DH for vacancies at Somerset. Or ring Marjorie Barnes, Personnel Officer at Newport (0633) 270110 for an application form, or send a full c.v. to her at Plessey Marine Limited, Spytty Road, Newport, Gwent for vacancies at Gwent. Please quote reference TEM/288

**PLESSEY**  
electronic systems



THE UNIVERSITY OF  
SHEFFIELD

DEPARTMENT OF  
COMPUTER SCIENCE

Senior Experimental  
Officer

Applications are invited from men and women for the above post available from 1 October 1983 to play a leading role in the development of laboratory facilities for the new Department of Computer Science, including microcomputer and super computer facilities, and real time computer systems development. Candidates should have knowledge and experience of logic circuits, electronics required for present use of microcomputer, super, microprocessor, and their programming and interfacing and concurrent computing and operating systems. Salary scale of the range £2,775 to £3,000 a year (plus 1% on 1 April 1983) to £4,125 a year, dependent on experience. For consideration, please send a full c.v. to the Department of Computer Science, University of Sheffield, Sheffield S10 2TN, to whom applications should be sent by 1 June 1983. (Ref. 83/18)

13733

Two  
Programmers

required to work at School Computer Development Centre, Birchgrove Road, Bilborough, Nottingham in order to develop software for use on the BBC microcomputer in schools with particular reference to the area of special educational needs. An interest in educational software is desirable. Salary circa £7,000.

Write for further details to: The Inspector for Computer Education at the above address.

13448

CAMBRIDGESHIRE

PETERBOROUGH  
TECHNICAL  
COLLEGE

LECTURER II in DATA PROCESSING required for September 1st to teach Computer Appreciation and Programming within the Computer Section.

Applicants should have experience in Business Data Processing and a knowledge of BASIC or COBOL would be an advantage.

Salary: £8,855-£11,022 (Burnham Technical Scales). Commencing salary will be determined by experience and qualifications.

Application forms and further details may be obtained from the Principal, Peterborough Technical College, Park Crescent, PETERBOROUGH PE1 1JZ.

0461

BOX  
NUMBERS

Box Number 1000  
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## Sales Executives

Look where dedication will get you...

Acknowledged innovators in the development of high technology WESTWARD concrete, design and manufacture master graphic display systems. A member of the powerful Technet group, based in Leamington, Warwickshire, we are one of several specialist companies supplying the manufacturing, electronics and medical industries in the UK and abroad. A dedicated approach means that the group is a major and growing force in rapidly developing market leadership over a range of highly successful products. Read of the remarkable quality and value of these terminals in the demand to ensure a quality level of applications. To lead this expansion we require Sales Executives dedicated to achieving the maximum sales with long term prospect of introducing a new and exciting product to the market. This is your chance to make an impact. A major new terminal, aimed at the commercial applications area, is being prepared for market launch by one of our associate companies. We are seeking dynamic professionals who can recognise and grasp this opportunity to advance both earnings and career prospects. You will expect to earn in excess of £20K per annum (there is no upper limit). Call our Consultant, Keith Penfold, or send your C.V. today.

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A step in the right direction

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M&A Personnel Limited, 110, Grosvenor Road, Leamington, Warwickshire, CV32 3JH. (0922) 222222. Fax: (0922) 222222. M&A Personnel Limited, 110, Grosvenor Road, Leamington, Warwickshire, CV32 3JH. (0922) 222222. Fax: (0922) 222222.

## Commercial Software

London area to £13,500

A well known and highly regarded software house is seeking to expand its commercial division by recruiting a range of people from programmers to project leaders and systems programmers. Essential requirements are 2 years recent COBOL from IBM OS/VS, DOS, VM/CMS, or ICL VME/B or Honeywell GCOS, DB and TP useful but not essential. Contact Brian Coates.

## Software Q.A.

Wiltshire to £12,000

Software quality assurance is a specialist discipline which combines the benefit of development experience with an appreciation of what well devised Q.A. practices and procedures can do for a company. We would like to meet candidates who are capable of contributing in this area for a company at the forefront of micro based office computing systems and communications technology. Contact Terry Harvey.

## Technical Authors

Wiltshire/Beds. to £9K-£12K

These are no ordinary positions; we are convinced that any technical authors who are seriously interested in developing careers with leading companies in the computer industry should be talking to us. Our clients are seeking experienced authors who can work closely with software and/or hardware development teams to prepare user manuals and operating instruction texts. Contact Terry Harvey.

## Medical Systems Prog.

Herts. to £12,000

An interesting and exciting area of micro applications involves the control of sophisticated electronic instruments in the medical world. Our client has an impressive and long established reputation in this area. A new vacancy has just arisen for a programmer with real-time and PL/M-8086 experience to work in a mixed discipline development group. Contact Terry Harvey.

## Software Support

W. Middx. £14K + car

Continuing success fuels the need for more technical support staff in this expanding company. They require software specialists with a minimum of 4 years experience gained from O.S., data comm., real-time and/or D.B. systems. People with banking financial applications experience are also required for the City office where the salary may be higher but no car is provided. Contact Terry Harvey.

## Fortran Programmers

Various £8K to £12K

We have been approached by several companies who require experienced Fortran programmers. Applications vary from business systems through electronic mail, graphics to bending software packages for optimum performance. Locations include, Oxford, Berks, London and Peterborough. If you are seeking a change of environment we may have the position you seek. Equipment: HP3000, PRIME, IBM mainframes. Contact Terry Harvey.

## Electronics Design Engs.

Herts/Berks. £9K-£13K

We would be interested to hear from electronics engineers with experience of digital design and development techniques leading to volume production. Detailed familiarity with TTL circuits necessary, with CMOS component knowledge desirable. Some programming skill would be attractive. You will work closely with software developers. These are challenging positions with prospects for advancement. Contact Brian Coates.

## Software Lecturers

Bucks. to £13K + car

We are seeking experienced professional lecturers to join an established and extremely well equipped training centre which functions as an integral part of our client's support organisation. It is essential to have T.P. applications experience with in-depth knowledge of data analysis, data comm. and DBMS systems. We are looking for people with varying levels of experience from 3 years upwards. Excellent career prospects. Contact Terry Harvey.

## Ferranti Argus Progs.

Aberdeen/London £9K-£17K

A very successful and expanding systems house with a reputation for advanced technical applications requires several programmers with Argus 700S and CORAL 66 experience to work for considerable periods in Aberdeen and London. It would be ideal if candidates also knew DEC RSX11M systems. We are looking for people with varying levels of experience from 3 years upwards. Contact Brian Coates.

## Distributed D.P. Systems

Herts. £8K-£14K

It is always a pleasure to assist in recruiting for new development projects; even more so when the projects are for advanced state-of-the-art products. We would be interested to hear from software designers with Intel 8086, UNIX, LAN or X.25 experience. Opportunities also exist for electronics engineers and technical authors with development experience. Contact Brian Coates.

## Compilers Op. Systems

Herts. £6K & £12K

Interesting and unusually attractive opportunities have arisen for two programmers with 6 months + and 3 years + experience respectively on micro/minibased systems software. The successful candidates will be required to join a small team of specialists writing compilers and operating systems. Our client is a leading US company now expanding its UK operation. Contact Brian Coates.

## Comms. Support

Herts/Manchester £14K + car

If you have a background in development or support of communications software and/or operating system level software gained with a supplier, please contact us. Ideally candidates will know several binary synchronous protocols to include 3760 and HASP. It is essential that you have the right manner and appearance for client contact. Knowledge of T.P., LAN, DB useful. Contact Terry Harvey.

Open letter to technical and commercial job seekers at all levels:

We are here to help you. Our free service to you is advice and counsel in identifying the most suitable position for the development of your career. Our consultants have held senior positions in the computer industry. They have the experience to understand your needs. If we do not have the position you want, we are prepared to help you find it. Why not accept this invitation to talk over your ideas with us.

Write or telephone (02403) 28383 during office hours - we are always ready to discuss these and many other interesting positions. Evenings and weekends only. Terry Harvey - Great Missenden (02406) 4705

HR

H. R. Associates Limited

The Central Computer and Control Research Institute  
57a Hill Avenue, Amersham, Bucks. HP8 5BX. Tel. 02403 28383  
Telex 920000 HRASS G

HR





## Analysts Programmers

The world of Informatics is a world of software success. As an internationally successful computer services company, with an annual turnover in excess of £100m, we have established an enviable reputation throughout the United States, the Middle East, Europe and the UK for the design and development of sophisticated computer systems. Since our foundation some 20 years ago we have grown rapidly to become a major force in data processing with over 40 offices world-wide and an impressive list of clients, featuring some of the biggest names in Commerce and Industry.

Our success both within the UK and Europe and our wide range of new and current projects, means we now need more people with a sound background on IBM equipment and preferably several years' experience in one or more of the following: ADF, IMS, DB/DC, DL/1, CICS, ADABAS, IDMS, TOTAL, COBOL, PL/1, ASSEMBLER.

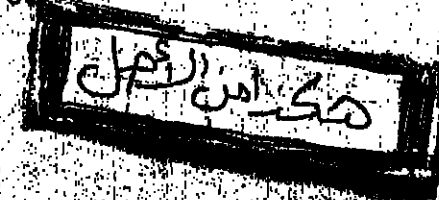
With Informatics you'll become an important member of a professional team, enjoying a top flight salary, excellent benefits and the prospect of working on varied and challenging projects throughout the UK, Europe and the USA. The breadth of experience to be gained at Informatics can only enhance your value as a professional and develop your career for the future.

So take advantage of the ultimate software package with Informatics. Send your c.v. immediately, or telephone for an application form, reversing the charges, to Janice Varvel, Informatics Consulting Limited, Pleasant House, 29 Mount Pleasant, London WC1X 0AR. Tel: 01-278 0087.

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DL/1, CICS,  
ADABAS,  
IDMS, TOTAL,  
COBOL, PL/1,  
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ULTIMATE  
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# Information Systems Manager

**Northants**

**£Negotiable + Car**

Our client, a multinational high technology corporation, is a world leader in digital communications and electronic component manufacture. The autonomous microsystems subsidiary, where this appointment is to be made, utilises a range of powerful minicomputers handling a wide variety of manufacturing, financial and technical applications which include CAD and ATE. A Senior Manager is to be appointed reporting to the Managing Director, with responsibility for managing the business information systems and providing a co-ordinating role for all other DP activities so that they contribute in a dynamic and effective way to the successful operation of the company.

Ideally candidates should have a degree or equivalent professional qualification and a minimum of 8 years' general computing experi-

ence in systems design, including several years as a manager in a technical or project management role.

Knowledge of manufacturing systems is important together with experience in the use of computers in technical applications. Above all candidates must be able to demonstrate the leadership qualities which will ensure that senior management understand and exploit the benefits of the latest advances in computer technology.

Salary is negotiable and is unlikely to be a limiting factor; there is an attractive relocation scheme where appropriate and a large company benefit package.

In the first instance contact Bruce Crammond on 01-631 4184 or send a detailed CV to:  
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County House, 10 Little Portland Street,  
London W1N 5DF.



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Project Managers  
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£18,000**

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We are seeking experienced Systems Programmers with an interest in Data Communications and Local Area Networks and with:

- at least 4 years systems programming experience
- real-time operating systems experience
- Assembler and CORAL experience
- a knowledge of Ferranti Argus would be beneficial

We are also seeking a number of Senior Consultants and Project Managers with experience of pre-sales activity and with the ability to accept responsibility for managing projects from initial customer negotiations, through implementation to final acceptance. Applicants should have:

- at least 8 years experience
- Project leadership/management experience
- real-time system experience
- experience of working within fixed price contracts

These are permanent positions and are offered with a very attractive salary/benefits package, including profit sharing scheme, free lunches and a subsidised Pension and Permanent Health Scheme.

Please write, or telephone for an application form to: Mrs. R. M. Mole, Personnel Officer, Leasco Software Limited, Ralliance House, 150/152 Bath Road, Maidenhead, Berkshire SL6 4LD. Telephone: Maidenhead (0628) 233971.

**Leasco**  
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COBOL

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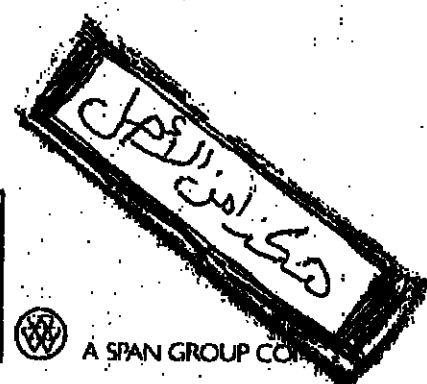
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The rewards for someone who can do this are great. That person becomes a key figure in the installation and is fully involved in all aspects of the work which the department undertakes.

If this is the sort of challenge which appeals to you, you are probably the right sort of person for the job. In terms of experience, the company has installed a Honeywell mainframe and a knowledge of the GCOS operating system and COBOL would be advantageous. Sound commercial experience however, coupled with the right temperament, constitutes relevant experience.

Major benefits include family BUPA, relocation assistance if required, bonus scheme after qualifying period and index linked pension.

For further details telephone Keith Taylor or send a full C.V.

MCA

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Required by Consultants engaged in independent assessment studies of defence systems and other complex engineering projects. Candidates should have at least 2 years' experience in real-time applications. Experience in PDP11, CORAL and MASCOT would be an asset. Salary from £7,800, depending on qualifications.

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Telephone: 0252 711474

(3724)

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COUNCIL

Herefordshire Technical College

Applications are invited for the post of

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IN COMPUTER  
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Commencing September 1st, 1983.

Applicants should be suitably academically qualified. Industrial experience is essential and teaching experience desirable. The grading of the post will depend on the successful applicant's qualifications and experience.

Lecturer I Scale

£5,355-£9,267

Lecturer II Scale

£5,355-£11,022

Salaries under review

Further details and application form obtained from the Principal, Herefordshire Technical College, Folly Lane, Hereford, who will send completed forms should be returned within two weeks of the appearance of this advertisement.

(3723)

IBM OS/VS1 SHR OP S.E. £8.5K  
IBM OS/VS1 S/LEADER S.E. £9K  
IBM OS/VS1 S/MANAGER S.E. £11K

Excellent career opportunities for the above personnel to join this progressive, expanding installation.  
Ref: LR/810/CW

Contact Lynne on 01-838-8411 regarding the above positions.

MVS SHR OPS G. LONDON £8.5K  
Rewarding career for MVS JES II Senior Operator with 2-3 years experience. Exposure to JCL and control of a sophisticated network will be advantageous.  
Ref: KS/100/CW

MVS SHR OP HANTS £8.5K + PERKS  
Exciting new challenge for Senior Operator in early 20's with 2 years MVS JES II TSO and JCL.  
Ref: KS/101/CW

OPERATIONS MANAGER S. WALES £8.5K + PERKS  
A senior person from a thorough operations and supervisory background is required to take control of our client's expanding dept. This position will stretch your man-management and administrative skills.  
Ref: KS/894/CW

Contact Kay on 01-838-8411 regarding the above requirements.

DOS VSE OP N. LONDON £8.7K  
18 months' experience is required to join this installation. Knowledge of VM SHADOW & CICS would be an advantage.  
Ref: AM/100/CW

POP RSTB OP SURREY £7K  
Our client requires an operator with 1 year + RSTB experience to join this expanding installation.  
Ref: AM/889/CW

Contact Anne-Marie on 01-838-8411 regarding the above requirements.

IBM 4300 SHR OP W. LONDON £9K  
A minimum of 18 months IBM experience using VM/CMS. You will be required to support the Data Communications equipment so experience would be desirable. This is a very interesting position where you will be expected to liaise with remote locations and take on an administrative and technical support role. 2 shift system.  
Ref: RM/888/CW

Contact Madeleine on 01-838-8411 regarding the above positions.

CONTRACT REQUIREMENTS  
JCL MVS - Operator  
Data General Eclipse AOS - Operator  
MVS JES 2 - Operator

Co Operators

VLI House, St. Martin's Lane, London WC2N 01-838-8411

Contact Station on 01-838-8411 regarding the above contracts.

(3701)

## JOB OPPORTUNITIES IN TELECOMMS

Plenty of work - for all  
with the right skills

Margaret Spooner looks at prospects in an industry that has had a 'minor revolution'

A MINOR industrial revolution has occurred during the past decade - the telecommunications industry has moved away from its earlier electro-mechanical base to electronics.

With high speed digital switching bringing computers into telephone exchanges and the widespread use of microcomputers in communications the telecommunications industry has become wider in its scope, and its business now overlaps with two other areas: computers and radio/television.

A representative of TEMA, the Telecommunications Equipment Manufacturers' Association, says this has led to a vast increase in recruitment opportunities in the telecommunications industry. It now needs experts in software and hardware and people combining traditional electronics engineering skills with a knowledge of computing. And developments such as radiopaging and video conferences broaden the range to include radio and television skills too.

So for people with the necessary technical background and suitable personal qualities future employment in the industry seems assured.

The major employers share similar concerns: demand for suitable recruits is fast outstripping supply; not enough graduates with the required blend of disciplines are coming out of universities; and experienced staff are also scarce.

The personnel manager of GEC Telecommunications explained the current situation: "With the technical changes brought about by more advanced products and by more advanced methods of manufacture there is a continuing reduction in production operators employed but an increasing requirement for technologists."

He added: "GEC Telecommunications is recruiting graduates in large numbers both for direct entry positions and for training. Difficulties are still experienced in recruiting engineers with experience. Development engineers, designers, test and commissioning engineers, systems analysts and software specialists come within this category."

It seems that telecommunications and computer companies are again taking on graduates in considerable numbers in this year's "milk round" (as the annual tour of universities and polytech-

nics by recruiting companies is known) after several years of rather patchy recruitment.

The major telecommunications companies all expect to obtain their full complement of new graduates but they face stiff competition from small companies which may specialise in only one area or product and, having a less defined salary structure, can lure graduates with high pay.

Against this the large companies hold out the attractions of stability and good working conditions in terms of equipment and opportunities.

Details of the type of work recruits will do or where they will be located are not easy to obtain since large companies are unwilling to give any hint to competitors about products being developed or any part of their strategy.

A high proportion of jobs will be in the South-east because of the concentration of companies in this area. Others are located at regional

centres of the various firms.

The major point emphasised by British Telecom was the need for recruits who combine the classical telecommunications training (electronics engineering) with a good grasp of computing.

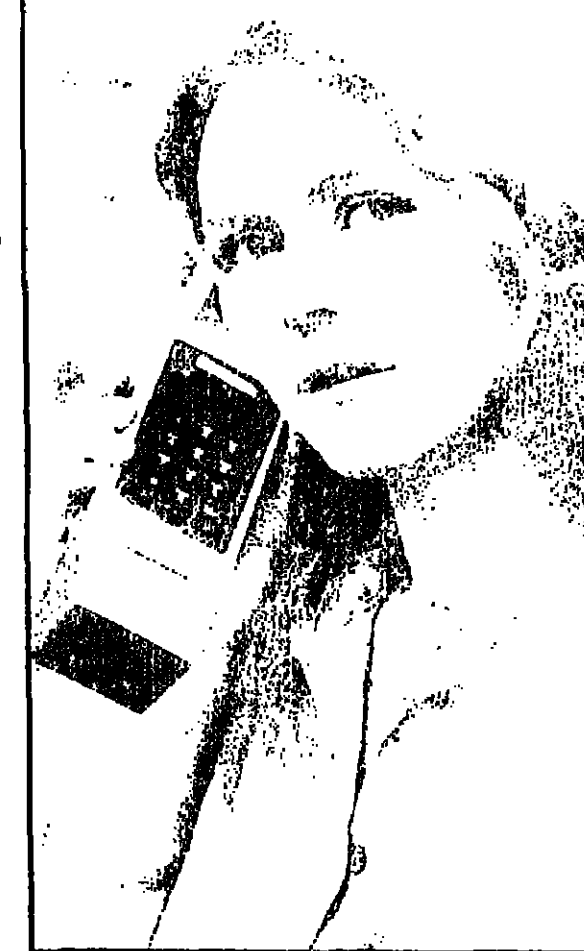
Don Hatfield, head of British Telecom's software standards and services division, said: "It is difficult to find the right blend of qualification among the graduates at present coming out of universities. The computer scientists have no knowledge of computing."

He foresees an increasing need throughout the next two decades for this combination of skills.

To alleviate the problem, British Telecom, in conjunction with Aston and York Universities, has developed four-year degree courses in electronic systems engineering which begin at the two universities next year.

Currently BT provides internal training courses to give electronics engineers the necessary computer expertise for their posts and to equip computer scientists with the electronics needed for jobs in telecomms.

The number of graduates recruited during the "milk round" varies from year to



The Racal-Millicom cellular radio telephone - part of the "minor industrial revolution" in telecomms.

year but, said Hatfield, "British Telecom can absorb 60 to 80 a year without too much indigestion".

Like most large organisations it prefers to "grow its own men" so that they understand the organisation, but it is sometimes necessary to recruit experienced

personnel. Ted Hackett, head of undergraduate training, emphasised that any potential recruit unwilling to move around the country would not be considered as mobility is essential for career development. Management potential as well as technical ability is sought.

## DEC VAX Experience?

Enjoy challenge and variety working on a new installation

negotiable around £10,000 to £11,000 + London Allowance

Mercury has just started operating a new independent digital communications network for voice/data transmission in the UK. This is one of the most exciting and important developments of the decade.

We have recently installed a DEC VAX computer, which will be used for a wide range of information systems and engineering applications.

To support our Computer Systems Manager and deputise for him in his absence, we are now looking for a computer specialist with DEC VAX experience. Responsibility will be for all activities relating to the efficient operation of the central computer and for helping to develop small systems with users.

Preferably a graduate, you must have at least one year's experience of working on DEC VAX computers, partly in an operating role. Some experience of programming in BASIC or FORTRAN would be an advantage. Flexibility and an innovative approach to problem-solving are essential characteristics.

Terms and conditions of employment are excellent and include relocation assistance where appropriate.

Please telephone or write for further information and an application form to: Ian Craven, Computer Systems Manager, Mercury Communications Limited, Ninety Long Acre, London WC2E 9NP Tel: 01-836 2449.



(3678)

COMPUTER ENGINEERS  
RECRUITMENT FEATURE  
JUNE 9

This feature, with full editorial support, highlights prospects for Computer Engineers in the computer industry today.

For further information please ring:

01-661 8080 (Direct Clients)

01-661 8787 (Consultancies)

Telecommunications  
Engineer

To £8,000

Avon

Our Client, a major subsidiary of a multi-national Mining and Natural Resources Group, is in the process of developing a nationwide interactive network of Hewlett Packard 3800 minis, using CASE DCX equipment.

This has created a requirement for an additional person who, reporting to the Telecommunications Co-ordinator, will assist in the planning, installation and day to day running of the Company's telecommunications facilities.

Our Client is seeking an ambitious Telecommunications Engineer with at least six months practical involvement in data communications, with experience of the isolation of problems, either personally, or by calling in the relevant Engineer.

This newly created position requires someone with a practical bias and the ability to generate positive relationships with users. This is an excellent opportunity for a young and ambitious Telecommunications Engineer, who enjoys variety and challenge and is keen to take advantage of the excellent career prospects available within this growing Organisation.

Starting salary is negotiable up to £8,000 and other benefits include a Company pension scheme and subsidised BUPA membership. Assistance with relocation expenses may be available. A current driving licence is essential, as a Company car would be available for travel to remote sites.

Applicants with the necessary basic experience and potential should contact Carl Ford on 021-236 3761 (24 hour answering service) or 0862 68585 (evenings and weekends until 9.00 pm).

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**The opportunity:** To join a nucleus of young professionals who will, in the not too distant future, assume leading roles within the Management Services Division.

**The requirements:** Extensive systems experience, evidence of achievement and a real determination to succeed. In a word; potential.

**The benefits:** In addition to the subsidised mortgage, these include excellent subsidised meals, flexible working hours, superb sports and social facilities plus many others. We may even offer relocation expenses.

**To talk further:** Simply ring Dave Carter or Jim Bush today (May 19) or tomorrow, Monday or Tuesday, any time up until 9.00 pm on: 01-405 9222 ext. 2424 or 2149, or alternatively write to: Nigel Holt, Prudential Assurance Co. Ltd., 142 Holborn Bars, London EC1N 2NH. Tel: 01-405 9222 (ext. 2568) office hours.

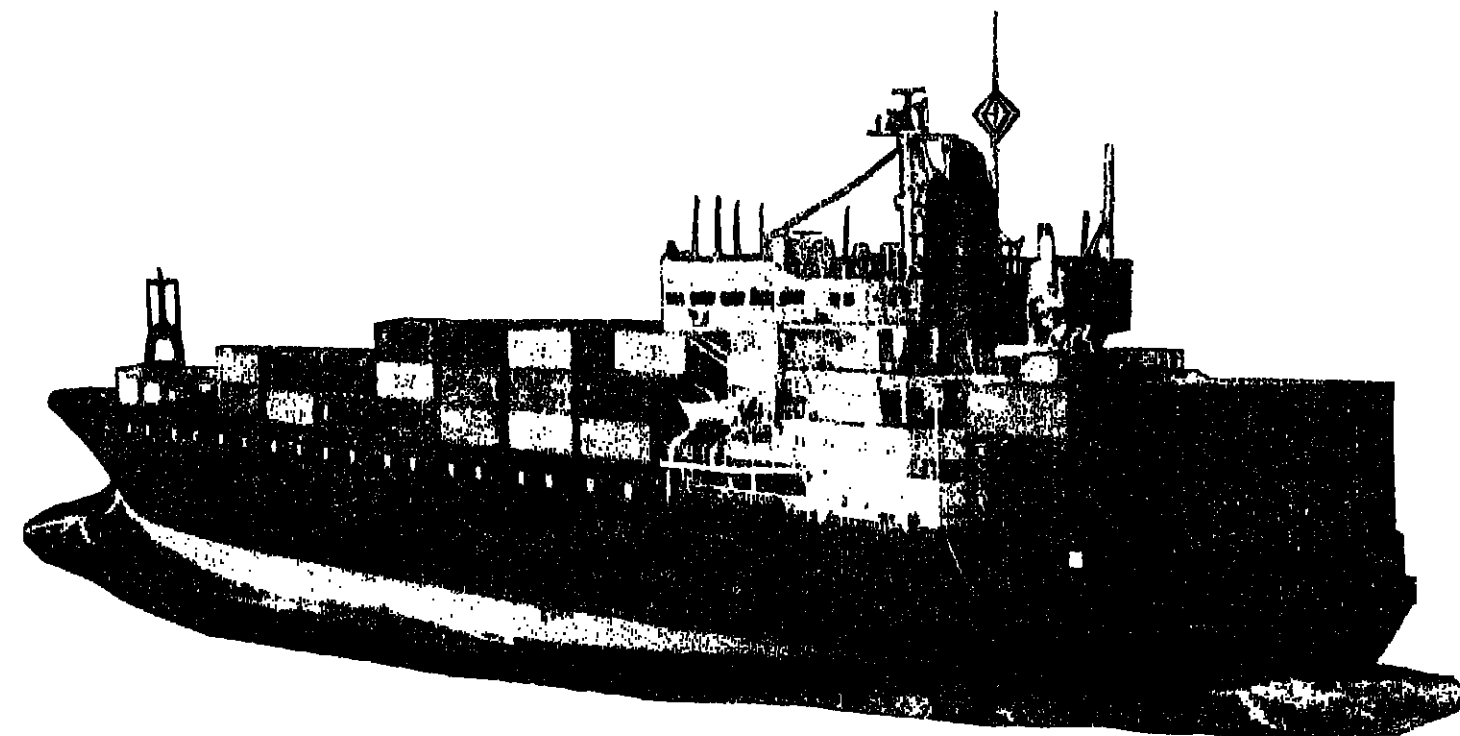
Interviews could be arranged outside office hours.

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## LONDON

Furness Withy, formed in 1891 is a British Group, with interests in a variety of fields such as Shipping, Oil Service Support and Drilling, Insurance Broking, Engineering and Hotels.

Furness Withy (Shipping) Ltd one of the major subsidiaries, own or manage a fleet of 25 ships including container ships, tankers, gas carriers, cargo liners and bulk carriers in worldwide operation. The company is large, with nearly 600 shore-staff in the U.K. and an annual turnover of £120,000,000.

The D.P. set-up is split between the company's head office in London and a large computer department based in Manchester, with on-line access to 8 further real-time locations. The project teams are currently involved in major development work on systems related to container control, freight documentation, corporate development, financial management accounting, personnel and husbandry.

The D.P. environment is highly progressive and there is a strong commitment to advancing the use of database techniques, shown by the substantial training given in this important area.

## Analyst/Programmers

Highly motivated individuals with over 2 years' experience in data processing, including COBOL and a solid analysis involvement in at least one commercial project, are required to work either in London EC3 or Manchester. Although not necessary, it is preferable for you to have some database and on-line understanding or if not, a willingness to become involved in these challenging areas.

For these positions Furness Withy Shipping offer salaries to £10,000 plus the substantial benefits that one would normally associate with a major shipping company. These include relocation expenses, free BUPA, life insurance, subsidised restaurant, pension scheme, travel concessions, season ticket loans and an active sports and social club.

For more information and immediate interview in either London or Manchester, telephone Sandra Hersh on 01-734 7394 during office hours, or on 01-458 6988 during evenings and weekends.

## MANCHESTER

## Programmers

Programmers with 2 years solid COBOL experience, preferably on-line, are required to work on general commercial applications within either the London or Manchester departments.

This is an opportunity to progress your career within a dynamic department which will widen your present experience considerably.

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£8K-£18K

A Surrey-based independent software house which is already committed to providing consultancy and computerised business systems to a number of medium-sized businesses wishes to increase its permanent staff. The position for which applications are invited are:

**CONSULTANTS.** The persons required for these posts must already be experienced project managers who have demonstrated leadership qualities and have the managerial and business skills to advise and assist top management in client companies to achieve benefits from computerised systems.

**ANALYST/PROGRAMMERS.** The persons required must have proven experience and achievements in working with IBM mainframes and/or Honeywell Level 6/DPS6 equipment. Knowledge of the latest operating software and of database design would be of special interest.

As well as a proven technical background the client is seeking staff who have the ability and presence to represent the company customers.

These posts present an opportunity for the development of business skills in a wide variety of situations and should prove particularly challenging to computer systems specialists who have achieved university or professional qualifications.

The company is a wholly owned subsidiary of a major British International organisation such that both salary and conditions of employment should prove attractive.

Please apply by telephone or writing to John Edwards.

Computer Search and Selection (Southern) Ltd.  
Carolyn House, Dingwall Road, Croydon, Surrey.

**01-681 8311**  
Agency Licence No.7248

**Computer Search  
and Selection**

(3883)

## IMS Specialists Rural Staffordshire to £15,000

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environment supporting  
extensive transactional  
databases"*

Due to the escalating demand from our many users for IMS systems, we require professionals with a detailed knowledge of IMS, including its structure and its facilities.

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We are the Computer Services Division of a highly successful Group of Manufacturing Companies and have made considerable investments in hardware and software with further expansions planned over the next twelve months, which will take to the leading edge of IMS technology. As a guide to the current complexities of our multi mainframe environment, we currently support over 1200 databases and 3,800 different transactions.

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021-236 3781

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061-833 0427

**BRUXELLES**  
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Boite 4, 1050 Bruxelles  
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**HOLLAND**  
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010 3120-78047

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## IBM Consultants

Our client requires experienced persons to project manage exciting new developments within existing IBM Accounts. Applicants will have taken responsibility for such projects previously and will have supported or managed major IBM installations.

A thorough knowledge of IBM, CICS, DOS/VSE, VM, MVS, VSAM, SNA and 4300/309X systems is required.

The salary is negotiable but not a limiting factor.

## Business/Industry Consultants

Our client requires Consultants with in-depth knowledge of any of the following:-  
● Retail and Distribution ● Banking and Finance ● Local Authority - Finance  
● Public Utility - Finance ● Manufacturing

If you are an expert in any of the above areas at a Senior level, a good communicator and able to carry out business discussions with top management, suggesting solutions utilising the latest computer technology, this is the opportunity and company for you.

An excellent remuneration package will be tailored to the candidate.

## Major Account Project Managers

Our client urgently requires Top line Project Managers with a detailed knowledge of mainframe systems and practical knowledge of co-ordinating support teams to implement major systems, significantly contributing to the revenue development of these Accounts in a Senior role.

The successful candidates will be working very closely with the Senior Management of companies with household names, therefore professional stature and excellent communicating ability is essential.

An excellent remuneration package will be tailored to the candidate.

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FULL INFORMATION:-**

John Bellamy 061-236 7026 (Office)  
061-969 3489 (Evenings & Weekends)



## Database Analyst

**Berks** to £13K  
National retailing organisation requires senior analyst to help develop on-line database systems. Candidates with degree or similar qualifications should have minimum five years' d.p. experience including previous successful involvement in database design. IBM experience desirable but not essential. Good conditions and prospects. Ref. 657

## Consultant/Project Leader

**South Coast** to £12.5K + car  
Experienced business analyst required by computer services company to control systems development for clients from feasibility to implementation. Candidates aged 30+ years, with degree or accountancy qualifications, should have strong IBM S/34 or S/38 experience. Attractive location. Excellent prospects. Re-location package. Ref. 538

## APL Analyst/Programmers

**Midlands** £6-12K  
Large manufacturing company seeks several Analysts and Programmers with recent experience of APL to develop a wide range of applications. Degree standard candidates are preferred with a minimum of 1 year's d.p. experience. Good benefits. Re-location assistance provided. Ref. 693

## Senior Analyst

**South Coast** to £12.5K  
Engineering company require systems analysts to work on IBM S/34 to S/38 conversion and to implement MAAPICS systems on the new machine. Candidates must be experienced in RPG II and MAAPICS; knowledge of RPG III and/or Basic is desirable. Re-location assistance is available. Ref. 691

Write or telephone:

**London West Computer Recruitment  
Evergreen, Dauntsey, Chippenham,  
Wiltshire SN15 4JA  
Telephone: (0249) 891114**

## LWCR London West Computer Recruitment

### Technical Sales Support

**Berkshire** £8.5-10.5K  
Computer manufacturer requires several junior and senior support staff for pre- and post sales support activities. Candidates ideally will have worked with mini computers on scientific and/or commercial applications. Personality and communications ability are important. Attractive location. Some travel. Good prospects. Ref. 688

### IBM Analyst/Programmers

**Midlands** to £10K  
Several manufacturing companies require senior programmers and analysts/programmers with IBM mainframe experience. Cobol and knowledge of on-line database techniques. Installations include RJE sites and multi cpu configurations. Re-location assistance in all cases. Ref. 700

### IBM Analyst/Programmers

**South Coast** to £9.5K  
Manufacturing and financial organisations with IBM mainframes seek programmers and analysts/programmers with a minimum of 1 year's Cobol experience. Knowledge of CICS and DLI is advantageous. Attractive locations. Salaries according to experience. Re-location assistance. Ref. 701

### Systems Analyst

**Bucks** to £10.5K  
Financial services company seeks analyst with on-line mainframe database design experience. Degree qualification desirable but not essential. ICL knowledge an advantage. Minimum 3 years d.p. experience required including at least 2 years of analysis. Excellent benefits including low cost mortgage. Re-location package. Ref. 590

### Real Time Project Leaders

**West, South, Wales** c.£15K  
Major companies developing real time projects in telecommunications, process control, telemetry and industrial automation require experienced team/project leaders. Degrees in computer science/engineering are essential; low and high level real time language skills are required. Excellent prospects. Re-location assistance. Ref. 614

### Real Time Programmers

**Wills, South** £8-11.5K  
Successful companies engaged in developing telecommunications systems require junior programmers. Real time experience preferred. Appropriate degrees essential. DEC and/or Intel knowledge an advantage. 2 years' experience of a low level or block structured high level language is required. Excellent prospects. Re-location assistance. Ref. 613

### Design Engineers

**South, West** to £12K  
Vacancies exist for hardware design engineers with small/medium companies engaged in the development of micro processor based products for medical systems, telemetry, and industrial and office automation systems. TI, Z80 or Intel experience plus some programming ability preferred. Excellent opportunities. Re-location packages available. Ref. 698

### Real Time Process Control

**South Wales** £11.5 to 13.5K  
Major companies have vacancies for experienced real time software engineers at project leader and manager level. Computer science/electronics/engineering degrees essential together with knowledge of DEC, PDP or VAX and/or Z80 or Intel micro processors. Good salaries. Re-location assistance. Ref. 692

(3714)



# DALROTH

## Saudi Arabia

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**Tax free salaries to £28,000**  
**plus usual Middle East benefits**

Our client, a major Computer Consultancy Group who has a number of facilities management contracts, development projects and also market hardware and software products, require the following personnel.

### FACILITIES MANAGEMENT PROJECTS

DOS/VSE SYSTEMS PROGRAMMER — ideally CICS & DL1  
 INFORMATION ANALYSTS — VM/CMS using and supporting a range of information centre products (ADRS, APL, PGF, DCF, STAIRS) or similar.

### PRODUCT MARKETING GROUP

ADABAS SUPPORT ANALYST/ENGINEER — good experience of Software AG or ADABAS Ltd products.

### HARDWARE MARKETING

SALESMAN — INTERGRAPH CAD/CAM system sales plus graphics experience essential  
 MAINTENANCE ENGINEER — MICROGRAPHICS digital and analogue.  
 GRAPHICS OPERATORS — senior and junior.

### OIL INDUSTRY REFINERY & DISTRIBUTION DEVELOPMENT PROJECT

A TEAM of Project Managers, Project Co-ordinators and Auditors, Communications and Database specialists, Process Control and Project Control systems experts, together with Accountants, Legal Administrators, Analysts and Programmers is to be built up over the next few months.

The installation will be 4300 series running under DOS/VSE and using DATA-COMM.

Relevant Specialist knowledge will be required in the following areas.

**Oil Industry**  
 Project Auditing and Co-ordination  
 Financial and Personnel Systems  
 Accounting and Legal systems  
 Document retrieval/Library systems  
 Standards and Quality Assurance  
 Marketing and Planning systems  
 Forms design and Document management  
 Contract/Legal Administration

**Database Design**  
 Systems Engineering  
 Warehousing and Inventory  
 M.I.S.  
 Performance Tuning  
 Communication Networks  
 Process Control  
 PERT Scheduling

For this project all appointments require a Degree or equivalent level Professional Qualifications

For further information please contact Jenny Dalrymple-Hay or Ian Murray West on 01-493 2947, 8am to 10pm, Monday to Friday, quoting Ref. 9974.

**DALROTH & PARTNERS LTD, 4 HALF MOON STREET, LONDON W1**

### SYSTEMS ANALYST & PROGRAMMER Lake District

#### The Jobs

This is an opportunity to join a team currently involved in the development of major new manufacturing and retail systems. The systems Department, has an I.C.L. 2960 and System 10, a Hewlett Packard Laser Printer, plus a number of micro computers. Our systems are written in COBOL and FILETAB and use Database techniques.

**SYSTEMS ANALYST** Circa £9,000 p.a. You should have around 3 years' experience as a Systems Analyst, together with some programming experience. Exposure to Database techniques would be an advantage. You will be expected to play a significant part in the development of new systems.

**PROGRAMMER** Circa £8,000 p.a. You should have around 3 years' experience, primarily in COBOL and/or FILETAB. You will play a key role in the development and maintenance of a wide range of systems.

We offer an excellent contributory Pension/Life Assurance Scheme. The package will include generous relocation expenses.

**The Company**  
 We manufacture 1/2 million pairs of high quality footwear per year and manage 250 Shops in the U.K. and Holland. We are an autonomous subsidiary of the C and J Clark Group, who have major manufacturing and retail companies in Europe, the U.S.A., South Africa and Australia.

Prospects for promotion within the Company and Group are excellent.

Please write, or telephone, for an application form to:  
 Graham Shaw  
 Personnel Manager  
 K Shoemakers Limited, Netherfield  
 Kendal, Cumbria, LA9 7BT  
 Telephone: (0539) 24343

**K Shoes**

**HMC GLOBAL LTD**  
 Specialising in Onboard Monitoring and Guidance Systems (HELM) and VESSEL Performance Analysis the Company is seeking  
**COMPUTER EXPERT**  
 for Marine applications  
 Candidates will be expected to have a good honours degree in Mathematics or Computer Studies with at least two years' experience with computer applications in industry.  
 Competitive salary and benefits are offered.  
 Write with detailed c.v. to:  
 HMC GLOBAL LTD,  
 BUCKINGHAM HOUSE  
 67 BUCKINGHAM STREET, LONDON WC2N 6BU

**SENIOR SYSTEMS ANALYSTS/DESIGNERS**  
**LONDON & BERKS — £12,000-£16,000**  
 A newly established operation catering for the needs of a software house require three Senior Systems Analysts/Designers with experience in the following areas:  
 IMS DB/DC • DL • IDMS • OS/MVS • STRUCTURED ANALYSIS USING YOURDON TECHNIQUES • PROJECT MANAGEMENT • FULL ON-LINE PAYROLL/PERSONNEL AND ADMINISTRATIVE SYSTEMS • INVENTORY AND FINANCIAL SYSTEMS.  
 Overseas travel will be required from time to time which will be suitably recompensed.  
 Interested applicants should forward a detailed resume or contact Richard White, Media Technical Services Group, 334 Euston Road, London NW1 3BG. Tel: 01-368 2284.

### Senior Operator ICL 2957

Jones Lang Wootton, a leading Firm of Chartered Surveyors and International Real Estate Consultants, are to install the newly released ICL 2957 System, with CAFS, in August 1983, in its West End Office. A senior operator is now required to augment existing staff.  
 Applicants should be educated to A level standard with 18 months proven practical experience on a medium-to-large ICL Mainframe, and have a knowledge of DME 2 and VME operating systems preferably under CME. Relevant experience within an on-line environment (hardware and software considerations) is also required. You should apply in addition to these technical attributes, you are self-motivated, can work, train and supervise others within a small team.  
 A realistic starting salary is offered with generous benefits in kind.  
 Please apply with full curriculum vitae to: A.J. Bacchus, Esq., MBIM, AIFM, Personnel Manager Jones Lang Wootton, Keir House, Telegraph Street, London EC2R 7JL.

**Jones Lang Wootton**

## Use technology to open doors for you.

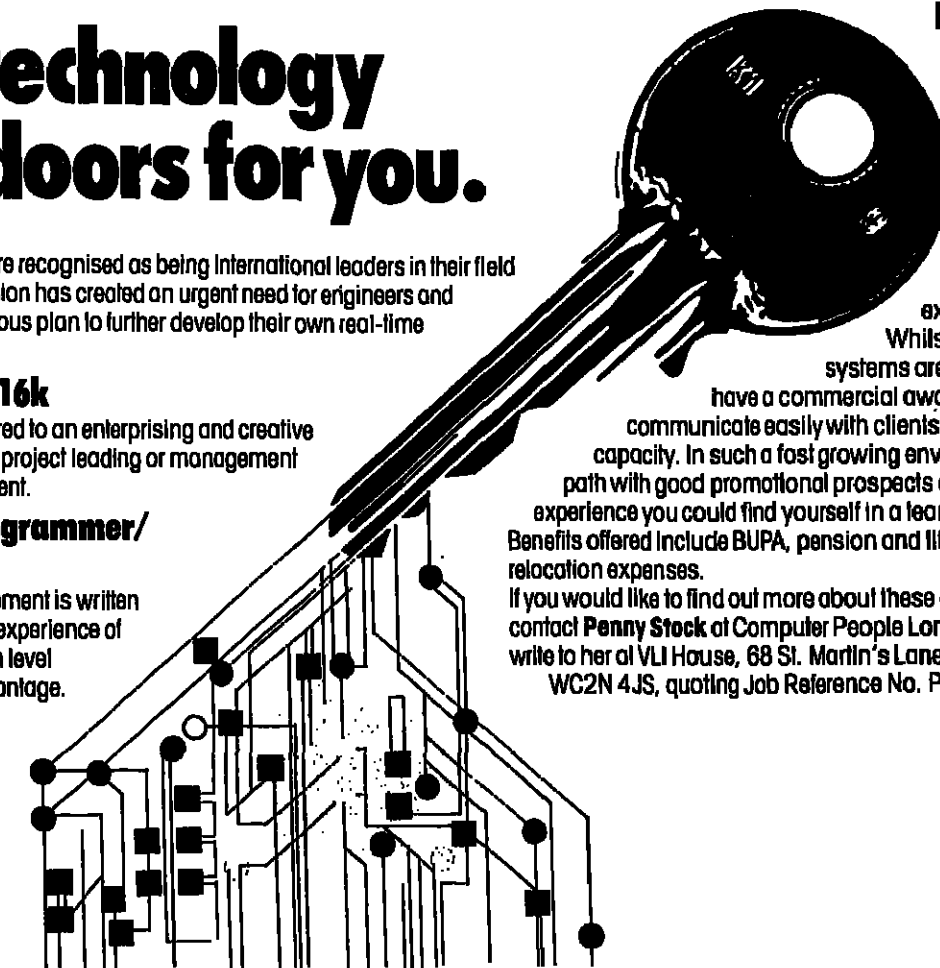
In the commercial world our clients are recognised as being international leaders in their field of technology and continuing expansion has created an urgent need for engineers and programmers to assist in their ambitious plan to further develop their own real-time systems.

### Software Manager — to £16k

This challenging new role will be offered to an enterprising and creative systems person currently in a similar project leading or management role but looking for further advancement.

### MACRO-11 Real-Time Programmer/Analysts — to £12k

The majority of their systems development is written in MACRO 11 on DEC PDP 11's and experience of RTL2 or a similar block structure high level real-time language would be an advantage.



### Hardware Development Engineers — to £11k

The successful applicants will have experience of designing and developing 8/16 bit microprocessor systems. Some software experience would be an advantage.

Whilst the applications for these systems are of a technical nature, you should have a commercial awareness and the ability to communicate easily with clients in either a pre or post sales capacity.

In such a fast growing environment, there is a healthy career path with good promotional prospects and according to your age and experience you could find yourself in a team leading role.

Benefits offered include BUPA, pension and life insurance scheme and relocation expenses. If you would like to find out more about these challenging opportunities, then contact Penny Stock at Computer People London on 01-836 8411 now or write to her at VLI House, 68 St. Martin's Lane, London WC2N 4JS, quoting Job Reference No. PS 12637.

**Computer People London**

## SOFTWARE & SCIENTIFIC ENGINEERS

### NEW MALDEN

**£8,000 to £18,000**

One of this country's leading systems houses, specialising in Advanced Defence Systems, have recently established a base in New Malden.

This new location, a few minutes from the A3 and New Malden station, opens up new and exciting career opportunities for qualified people living within commuting distance or wishing to move to the Surrey area.

The company is a market leader in Defence Consultancy, commanding large military projects from their studies stage through to Systems Engineering to Software Implementation.

Graduates with a minimum of two years' experience in Defence related Systems should apply.

Immediate requirements include:

- ★ Software Engineers with CORAL and VAX to work on a test rig simulator.
- ★ Hardware Engineer with MICRO Processor Systems building experience.
- ★ Trials analysis, two years' FORTRAN/DATA Handling experience.

The company offers many advantages to the successful candidates namely Professionalism, Training, Career Development and an excellent income package.

For further information please send a c.v. or telephone the advising consultant quoting the Ref number DLM 20/2.

**DATAMATICS**  
**RECRUITMENT SERVICES**

**01-399 9183**

Datamatics, Freepost, Surbiton, Surrey KT6 5BR

**Suffolk County Council**  
 Education Department  
**SENIOR ADMINISTRATIVE ASSISTANT**  
 (Computer Technician) Post L276  
 APs: £7791-26325 (Pay band 1, 2, 3)  
 Applications are invited for this post within the Education Department's Headquarters in Ipswich.  
 The successful applicant will be required to contribute to the interesting development of applications both for departmental administration and school based computer usage. The work will include the preparation of programme specifications, programming, selection and implementation of suitable packages, etc. The department has terminal links, while the postholder will supervise, to the Authority's ICL 2976 (VME/8) mainframe, and the schools network is being standardised on 'Research' machines. Generous removal/relocation expenses are available in appropriate cases.  
 Application forms and further details are available from the County Education Office, Grimwade Street, Ipswich IP4 1LJ. Please enclose a stamped addressed envelope.  
 Closing date: 2nd June, 1983.

**DE HAVILLAND COLLEGE**  
 The Campus, Welwyn Garden City, Herts  
**DEPARTMENT OF COMPUTER STUDIES**  
 (Based at Elstree Way, Borehamwood)  
**LECTURER II**  
 required with experience of commercial data processing preferably in micro and/or mini computers. Applicants with teaching experience and teacher training, with preferably a knowledge of two of the programming languages BASIC, PASCAL or COBOL.  
 Salary scale: £9000-£11,000 per annum (under review) plus £240 Overtime/Leave Allowance. Assistance with relocation expenses in approved cases.  
 Forms and further details from The Principal, De Havilland College, The Campus, Welwyn Garden City, Herts.  
 Closing date: Friday, 3 June.

**BANKING INSURANCE AND FINANCE UNION**  
**DATA PROCESSING MANAGER**  
 £12,000 P.A.  
 An ideal opportunity exists for a person with suitable experience to assume responsibility for an ICL ME28 installation.  
 A sophisticated on-line membership system is in operation and the successful candidate will assume responsibility for the management of computer operations, liaising with various user departments and designing and developing future systems.  
 The successful applicant must be able to demonstrate the ability to manage a computer operations environment and should have systems design and programming experience, preferably on ICL equipment. Additionally experience of on-line systems is a requirement.  
 Applications giving full details of age, qualifications and career state should be addressed to:  
 Administration Officer  
**BANKING INSURANCE AND FINANCE UNION**  
 Sheffield House, 17 Hillside, Wimbledon SW19 4NL  
 Closing date for receipt of applications 14 June 8th, 1983.

## ICL COBOL OPPORTUNITIES

ESSEX. £7,500-£10,500

Within an ICL 2900 installation shortly upgrading to VME, two exciting opportunities exist for a COBOL Programmer and a Systems Analyst (Analyst/Programmer seeking promotion). A minimum eighteen months' experience in each discipline is required and will allow the successful candidates to work on systems using IDMS and TPMS. A full range of benefits supplement these attractive opportunities. Ref. CW1

## IBM COBOL OPPORTUNITIES

HERTS./N. LONDON. £8,500-£11,000

Our client is the bureau division of one of the most successful UK companies and is seeking two IBM COBOL Programmers to assist in the development of a large TP/ database project.

Candidates are sought who have the ability to assume greater responsibility and ultimately progress to an analyst role. At least two years' experience of IBM COBOL programming using structured standards is necessary together with ability to work in a multi-disciplined team environment.

Good technical training and performance bonuses make these attractive career opportunities. Ref. CW2

## PL1, CICS/DL1

TO £15,000

Our client, an International Company in West London, wishes to recruit experienced Analyst/Programmers with PL1, CICS and preferably DL1 skills. The successful applicants will work on a new On-line Database project taking it from functional specification through to implementation, and assuming management responsibility along the way. Ref. CW3

## APL PROJECT

=£NEG

We urgently require APL specialists at all levels to work on an interesting new project in Middlessex. Salaries will be commensurate with experience and benefits will be those normally associated with a large International company. Ref. CW4

These are just some of the career opportunities that we are currently assisting our clients to fill. We would be pleased to talk to you regarding these and many other vacancies that we are currently aware of. Telephone one of our consultants to discuss your particular requirement and how DP Selection can help you.

**dp SELECTION SERVICES**  
A member of the DP Support Services Group

7 Swallow Street, London W1R 7HD  
"We look forward to hearing from you."

01-434 2042  
(24 hour Ansaphone)

(37301)

## RPG II or RPG III

SYSTEM 38. SURREY. £8,000-£10,000

If you can offer upwards of one year's RPG on System 34 or 38 then one of our clients located in an attractive part of Surrey could offer you challenging project work on their IBM System 38. You will also be given the opportunity to develop your analysis skills in this progressive and successful company. Ref. CW5

## IBM COBOL - CICS/DL1

N. SURREY. £10,000-£11,000

A Financial User based in North Surrey is seeking IBM OS or DOS COBOL Programmers to strengthen their CICS DL1 project development environment. Applicants will need to offer at least two years' IBM COBOL ideally with some on-line or Database experience and the company is prepared to offer training in CICS or DL1 if required. Ref. CW6

## IBM COBOL ANALYST/PROGRAMMERS

... full training in CICS

NORTH HAMPSHIRE. £10,000-£13,500

Exciting opportunities exist for COBOL Analyst/Programmers at new IBM installation housing some of the latest IBM hardware and software.

Several large financial database systems are scheduled for development. Subsequently this well-known international company is seeking to recruit experienced IBM COBOL Analyst/Programmers. Software includes CICS, DL1, MVS and TSO and full training in these areas will be given to successful candidates if appropriate.

The company offers excellent starting salaries, generous benefits, including relocation assistance and exceptional career prospects. Ref. CW7

## COBOL PROGS & ANALYST PROGS

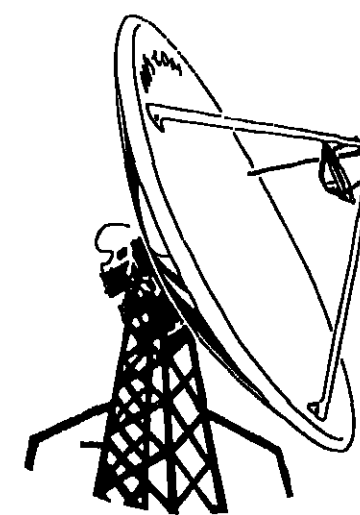
MIDDLESEX. £7,000-£11,000

The systems development team within this successful Middlesex-based company is constantly expanding in order to meet demand from its UK subsidiaries. Hence our client is seeking to recruit a number of COBOL professionals keen to progress their career in an interactive, database environment.

Candidates should possess a minimum of 18 months' mini or mainframe COBOL. You will be given the opportunity to join a friendly team with a challenging environment and learn new techniques. Ref. CW8

# MODUS

Modus Management Services Limited  
19 West Street, Dunstable, Beds. LU6 1SL  
Telephone: Dunstable (0582) 608002



# Satellite Communications

the systems of the future

## SOFTWARE PROFESSIONALS

Northern Home Counties £8,500-£14,000

The positions to be filled comprise all aspects of software development from producing functional specifications through to implementation, testing and integration with hardware and documentation. The work involves the use of a PDP11/24, operating under UNIX, with the target system based on INTEL 8086 processors. Languages used are PLM under RMX86, Assembler and Pascal.

Applicants must have a good degree or similar qualification plus at least 18 months in a real-time development environment.

The company have opportunities for Software Engineers, Senior Software Engineers and Section Leaders. The minimum technical ability sought will be good Assembler-level design experience. The more senior positions require additional high-level language experience, e.g. PASCAL, CORAL, BCPL, etc., ideally applied to micro-based systems. The very nature of this company's work necessitates international involvement. This presents opportunities for all levels of staff to partake in occasional travel abroad. Particular attention will be paid to applicants who can demonstrate a sound knowledge of at least one of the following: operating systems, communications software, I/O drivers, interrupt handlers or micro software development using MDS.

Contact PAM HALE at office or evening/weekends on 0908 670094

CW70

DCC Limited are an integral part of the multi-million M/A-COM organisation, now affording exceptional opportunities for career growth and improvement, with a new range of state-of-the-art products. As a World leader in digital communications systems, their continuing expansion results in the opening of a new manufacturing plant and development laboratory. As well as providing attractive working conditions, the employment package includes a BUPA scheme, a stock purchase scheme and other benefits. Assistance with relocation is available if necessary.



Modus Consultants are in London every Tuesday & Thursday - come and meet us

# Group Leader

## Systems Programming

Up to £12,771

We operate a 4 Mb IBM 4341/2 with an STC 3805, using MAF software, to control our network of 100 terminals and an IBM Personal Computer. VM is the host environment for both DOS/VSE using CICS and DL/1 and for CMS facilities such as APL, ADRS and ADI used to support the new thriving Information Centre.

The successful candidate will lead a small systems programming section in the maintenance and installation of systems software. You should be a practising systems programmer who is seeking a more responsible and influential role and able to demonstrate in-depth experience and expertise in at least two of the areas: VM, DOS/VSE, CICS and DL/1.

For more details telephone John King on 01-303 7777 ext. 743 or write CV to: - The Data Processing Manager, Bexley London Borough, Data Processing Department, 9 Brampton Road, Bexleyheath, Kent DA7 4EZ. Closing date 31.5.83.

**Bexley** London Borough

# CONTRACTS

Force Eight Computer Services is an established software house divided into three areas: Contract Recruitment, Project Management and Training.

Below are a selection of the immediate contract positions we have at present. If you are an experienced and professional contractor available or becoming available soon, or should you wish to discuss the possibility of becoming a contractor, please telephone Jackie Robbins of our Resources Division on 01-680 3761 for further information or send your full c.v. which will receive our prompt attention.

**Programmer/Analysts** ICL 2900 VME/B  
**System Analysts** IDMS COBOL

We have a number of vacancies in this area all at different levels for six month contracts both within the U.K. and overseas.

**Programmers** IBM System 34/38 RPG II, III  
Experience of System 34/38 conversion essential.

**Senior Programmers** BURROUGHS 6700, 6800  
**Analyst Programmers** DMS2 COBOL, GEMCOS

Five years' Burroughs experience essential for six month contracts.

**Analysts** OS/VSI VM CICS

Analysts required with programming background preferably in PL/1 for six month contract in Kent. Immediate.

**Force Eight Computer Services**

8 Mint Walk, Croydon, Surrey, CR0 1EA

# ACROSS THE UK

**NORTH LANCASHIRE**  
**MINI TECHNICAL SUPPORT** £9,000  
Working on a multi-machine user environment, this is an absorbing and wide ranging post. You should have experience in a technical support role on any mini and the ability to provide systems software, applications software and user technical support.

**CHESHIRE**  
**SYSTEMS ANALYSTS** £10,000  
Two vacancies exist at this level. The first calls for financial systems experience on interactive minis. The second post is IBM mainframe based, but calls for experience on any mainframe. In both cases the ability to see complete systems through is essential.

**MANCHESTER**  
**PROGRAMMERS,**  
**ANALYST/PROGRAMMERS** £9,000  
Around 3 years IBM COBOL is sought in both disciplines in a commercial environment for these excellent openings. There is a good deal of on-line development work and whilst CICS is an advantage it is not essential. One post calls for payroll (preferably UNIPAY) expertise.

**LAKE DISTRICT**  
**ANALYST PROGRAMMERS** £10,000  
This is an extremely sophisticated ICL site with two new positions vacant. In both cases work is on ME29 with TME/TP and IDMS. Skills in these areas would be a strong plus but is not essential if you have some ME29.

**ACROSS THE NORTH**  
**REAL-TIME SYSTEMS** £14,000  
We have a number of vacancies at a variety of levels for staff with real-time systems expertise. The posts range from defence systems using CORAL, through industrial process control (any technology), CORAL/RSX, (any applications), to real-time Comm using ASSEMBLER on micro. Please ring for full details.

**WEST YORKS**  
**PROGRAMMERS** £9,000  
Working within a major IBM mainframe user at least 2 years IBM COBOL is sought with good command-level CICS expertise. Any database knowledge is a plus but not essential.

**WEST YORKS**  
**GSD ANALYST/PROGRAMMERS** £5 FIGS  
At least 3 years experience is sought on IBM GSD equipment which must include S34. There will be a good deal of work on S38 and any expertise in this area would be desirable but not essential. However flexibility and initiative are important factors.

**LEEDS**  
**GSD OPS. MANAGER** £ NEG  
At least 2 years senior operations involvement on S34 or S38 is sought by this S38 user site to manage the day to day running of the installation. This will include close user and development department liaison functions.

**LEEDS**  
**ICL PROGRAMMERS** £9,500  
A background on ICL IDMS is the key to these posts. Additionally some support analysts' experience would be preferable in certain cases. Specific knowledge of any given ICL hardware is not important.

**LANCASHIRE**  
**PROGRAMMER/ANALYST** £9,500  
A programming background of 2 years plus on HONEYWELL L8 with some TPS is sought. Any analysts would be a benefit, but this post is suitable for a programmer looking for involvement in the analysis field.

Contact STEVE SYKES or JOHN MASON on Leeds (0532) 455911 during office hours, or STEVE SYKES on (050484) 350 evenings and weekends, or write to the address below.

**LORIEN** COMPUTER SERVICES



Lorien Computer Services Recruitment Consultants  
OCS House, Servia Road, Leeds LS7 1NJ.  
Telephone Leeds (0532) 455911 (24 hour telephone service)

First Floor, 35 Piccadilly, London, W1V 9PB  
Telephone 01-439 8985

# LONDON VACANCIES

**ICL SENIOR ANALYST**  
A large 2900 site seeks an experienced Analyst to join a small team in a senior role. 5 years D.P. experience is required including 2 years analysis. On-line experience plus IDMS would be an advantage but training will be given.

**ICL PROGRAMMERS** £11,000 + BENEFITS  
A major financial organisation seeks 2900 VMEB COBOL programmers with from 7 to 4 years experience as a Programmer in a similar environment. Large progressive company. Benefits are included.

**ICL ANALYST**  
We seek experienced ICL Analyst/Programmers to progress to full-time analysis. 6 years background with some 2 years analytical exposure in a 2900 VMEB on-line environment is required and a knowledge of TPMS or IDMS would be ideal.

**ICL ANALYST/PROGRAMMER**  
An international organisation seeks Analyst/Programmers to meet expanding demands. 2 years COBOL programming in a 2900 VME installation is required. Benefits include a Pension Scheme and free lunches.

**ICL PROGRAMMERS**  
A progressive company is seeking 2 Analyst/Programmers with 1-2 years experience including some on-line work. Currently a 2900 is being expanded to include database systems.

**HP 3000 PROGRAMMERS**  
This prestigious international company is currently seeking good programmers and Analysts/Programmers with a minimum of 12 months COBOL experience on HEWLETT PACKARD. Any exposure to FORTRAN or BASIC would be appreciated.

**DEC/VAX SENIOR PROGRAMMERS** £15,000  
Our client requires a solid background in COBOL exposure to VAX/VMS is required and this. For the senior position with experience and experience is required; 2 years for the Analyst/Programmers.

**DEC/VAX ANALYST/PROGRAMMERS** £12,000 + CAR  
This progressive company requires 2 FORTRAN Analyst/Programmers with 4 years D.P. background. These posts provide an ideal opportunity to progress to a more senior level as number two in a team. ASSEMBLER or BASIC would be an added advantage.

**DATABASE MANAGEMENT** £14,000 + CAR  
If you have a good background in either IDMS or DMS together with management experience our clients would be interested in your potential to progress to this senior level of database administration.

**FINANCIAL ANALYST & PROGRAMMER** £12,000 + BENEFITS  
A knowledge of financial modelling systems: PASCAL is sought for a senior position in the City. For an additional programming vacancy a sound commercial programming background in FORTRAN and BASIC is sought plus the ability to work quickly and accurately. In addition a degree (mathematical) and a knowledge of ICL machines and micro is also preferred for both positions.

For all these positions call JOHN METCALFE on 01-439-8985 during office hours or at home on 01-439-8985 between 7 p.m. and 9 p.m., alternatively send your current C.V. to the address below.

(3690)



# SYSTEMS AND PROGRAMMING

**PG II OR PG III CITY c £9,500**

International firm involved with insurance and finance, has recently updated to an IBM System 38. They seek a bright young programmer with the potential to develop their analysis and user liaison skills in an expanding user environment. Ideally you should have 18 months' + IBM experience preferably with some experience of RPG III, though training will be offered to a really keen PG II programmer. This is a pure development job, with excellent career potential. REF: C2493

**LEWITT PACKARD-COBOL To £11,000**

A major financial and industrial organisation seeks an Analyst/Programmer to become part of their development team. You will play an integral part in user training, coding, design and system implementation. Minimum of 18 months HP3000 experience is needed, hopefully supplemented with a background which encompasses IMAGE, VIEW and JERRY. The company offer an excellent package which includes a good salary, free lunches, and 23 days holiday. REF: A2025

**ANALYST/PROGRAMMERS HANTS To £13,500**

Excellent opportunities in the Hampshire countryside and coast for IT professionals. One position at Senior level requires five years' + IBM COBOL programming/analysis with knowledge of MVS/CICS/PL1 desirable, good JCL, structured techniques and supervisory skills, to lead a development team, the others at the lower level require two years' + IBM COBOL, with PL1, and on-line experience useful and the ability to develop your analysis skills. These are new positions offering career prospects, in-house education, and exciting development projects in financial and commercial fields. A full relocation package is offered at all levels, with profit-sharing, BUPA, pension, and discounts. REF: C2491/2

**DEC-BASIC/FORTRAN SNEG**

You can offer anything from 12 months' to 12 years' DEC PDP or VAX experience, under any operating system and using either BASIC I or FORTRAN. Any clients would like to meet you. You will become involved in the development of a number of projects ranging from finance to administration. From the outset you will have user responsibilities. They offer an excellent salary which will more than compensate with your experience and ability. If you would like to hear more about this City-based post, then now getting references. REF: C2491/2

**SYSTEMS PROGRAMMERS SURREY To £13,000**

Five Surrey-based firms, a bureau and an insurance firm, seek Systems Programmers with two years' + experience of either DOS/VSE, or MVS/VS/CICS/VITAM to join their teams. Also a junior position available for an ASSEMBLER programmer with IBM MVS or DOS/VSE experience to join a Systems (18,000) development team. All offer excellent career prospects, four weeks holiday, free health insurance, sports and social club. REF: C2491/2

**COBOL SURREY To £9,000**

A commercial organisation based in Surrey are currently seeking competent Programmers with two years' experience working with VME/B or ME200 and COBOL. You will be working on exciting new development projects on their ICL 2958, and will be utilising SCL, TPMS and IMS, in which full training will be offered. REF: D2456

**ANALYST/PROGRAMMER CITY £11,500**

International commercial company retaining IBM 4341 equipment require additional Analyst/Programmer with two years' MVS or OS/VS1 and COBOL experience. You will play a leading role within a small team, and will be responsible for working with new packages, from design through to implementation. Ability to deal with users' adaptations and difficult prospects are offered along with generous company benefits. REF: C2493

**COBOL MIDDLESEX £8,000**

Commercial organisation currently holding an ICL 2966 running under DORGE II with 1800 COBOL and ELET60 are currently seeking a programmer to help support conversion work from ICL to Honeywell mainframe. You should have a minimum of 12 months' exposure to COBOL, ELET60 and GCL. Initially you will be responsible for working solely on ICL programs but in 12 months time you will train on Honeywell equipment, and join a fast-moving busy development team. REF: D2276

**SYSTEMS ANALYST MIDDLESEX £12,000 neg.**

A prestigious software house involved in multi-million insurance claims seeks a dynamic analyst with a programming background. The ability to liaise effectively and professionally with their clients, and develop and implement new systems. If you are seeking exposure to IBM System 38, this is the opportunity for you. REF: C2033

**BURROUGHS - SENIOR SNEG**

Outstanding applicants with a solid BURROUGHS background with either an Teal or Systems Analysts experience are sought by The Burroughs marketing concern. You will have the floor and tact to be able to communicate with Management and Users besides overseeing a team of staff. The company house B1955 on-line DMS II. Career prospects are over average and almost all of the work is development based. An excellent remuneration package is offered. REF: A2203

**ANALYST/PROGRAMMER MIDDLESEX To £11,000**

A large commercial company housing IBM 4341 running under DOS/VSE in PL/1 and IBM Assembler are currently seeking a competent Analyst/Programmer with a minimum of 18 months' PL/1 programming experience and 18 months' exposure to systems work. You will be maintaining systems programs as well as becoming involved with major on-line development projects incorporating database facilities. Excellent company benefits including pension scheme, life assurance and LVS. REF: D1982

**COBOL £8,000 +**

A financial organisation based on East London/Essex borders are seeking a competent programmer with at least 12 months experience on M4300 mainframes. Exposure to PL/1 and CICS would be advantageous. You will be working on major new projects, on-line program development and new applications. They offer excellent working conditions and company benefits including subsidised restaurant. REF: G1033

**SYSTEMS ANALYST BERKS £11,000**

Offering career move for candidates with a minimum of two years' systems analysis experience to take up a key-role and tackle major commercial and production systems. They are an ICL ME29 installation and will be working with a great many TP systems. Company benefits include pension scheme, subsidised restaurant, and life assurance. REF: D2470

**RPG III PROGRAMMER H. LONDON To £10,000**

An excellent opportunity for an RPG II or III programmer to join the IBM System 38 site. If you can offer two years' IBM System 34 experience and would like to be retained on System 38, this could be the ideal career move. The successful applicant will join a small enthusiastic development team, embarking on exciting new projects. Please call for further details of this outstanding opportunity. REF: C2395

**PROJECT LEADER £13,000**

Exciting career move for high calibre DP professional with a couple of years' analysis experience to take up a key role within this international organisation. IBM System 38/RPG III experience is essential along with the ability to organise and supervise staff. If you believe you have the necessary skills for this highly successful organisation, call now for further details. REF: C2393

**ANY COBOL - RETRAIN £9,000**

My clients a leading, London-based banking organisation, seeks bright and versatile COBOL programmers to retrain onto their Tandem machine. The majority of work is involved in the development of entirely new systems in banking, administration and general financial applications. You should have a minimum of 12 months' COBOL and be quick to learn. Career prospects are solid for the right person and the salary is excellent. REF: A2055

**MVS TEAM LEADER CITY £12,000**

One of the City's most established and respected firms involved in accounting, insurance and shipping requires a Team Leader with four years' IBM MVS COBOL experience, and preferably on-line and IMS experience. You will be involved with a variety of projects, expected to supervise where necessary and develop your technical skills using the latest IBM hardware and software. Also position available for Senior Programmer with around three years' IBM MVS COBOL. Full benefits package. REF: C2421

**JUNIOR PROGRAMMERS SURREY/SUSSEX £6,000-£7,000**

Surrey insurance firm, and Sussex-based bureau, both seek junior programmers aged 18-25 with 6-12 months IBM COBOL experience gained in a commercial company (not student level). You will be offered the chance to develop your structured programming techniques, get involved with design, coding and testing, and after about six months, full training in CICS will be provided. If you need a change, or would like formal training, and benefits including sports and social club, life insurance, subsidised restaurant, four weeks holiday, then call now for more information. REF: C2459

**ICL ME29 CITY To £12,000**

A major insurance concern, currently in the process of moving the DP department to the City, is urgently seeking ME29 Programmers and Analyst/Programmers. Programmers should have a good understanding of the ME29, TIME and TRS. Analyst/Programmers must have worked from system design to implementation. Any exposure to PRINTWELL is an advantage for these positions but not essential as full training will be provided. Call me now for further details or write enclosing full CV. REF: D2351/2

**SENIOR PROGRAMMER/IBM £10,000**

International bank in Central London require an IBM COBOL programmer with two years' experience in a commercial environment. You will play a key role in a small DP department, developing new business for the bank. The Banking package is offered which includes subsidised mortgage. REF: C2121

**UNIVAC-COBOL c £9,000 + Mort. Subs.**

Do you have a minimum of 12 months' UNIVAC 1100 COBOL experience? Would you like to become involved in development work on a number of varied projects ranging from finance to administration? If so my clients based clients would like to meet you. They offer a first-class working environment, thus you can develop your career whilst receiving training on a database, on-line techniques, and JSP. Full relocation will be paid, a mortgage subsidy is offered, and there are bonuses throughout the year. REF: A1553

**RPG III ANALYST/PROGRAMMER c £12,000**

Major financial group has an urgent requirement for an analyst/programmer to take charge of their personal finance systems, dealing with desktop systems, and install packages, pension admin systems. You should have a minimum of three years' programming and analysis, with some experience of IBM System 38 RPG is a strong bonus skill. A financial background would be an asset, and the ability to accept heavy responsibilities. Non-contributory pension, profit sharing, plus usual benefits. REF: C2345

**ANALYST/PROGRAMMER CITY £12,500**

This prestigious financial organisation (housing IBM 4380 mainframes running under DOS/VSE and VSAM) are seeking to appoint an Analyst/Programmer with good user contact. Initially you will be involved with coding, banking and upgrading a new system and thereafter working on new projects from system design through to implementation. Benefits include four weeks holiday, LVS, STI and pension scheme. REF: C2359

**SYSTEMS ANALYST SURREY £11,500**

Major insurance company based in Surrey housing ICL 2969 has an urgent requirement for a Systems Analyst to join a busy, hard-working team. You will have four years' data processing experience with at least two years' recent systems experience within either insurance, pensions, accounts or finance. Applications are invited from candidates with any insurance background. Benefits include mortgage subsidy, life assurance and pension scheme. REF: D1739

**HONEYWELL-COBOL To £11,500**

A nationwide electronics organisation, based in the Berks/Middlesex borders are currently seeking an Analyst/Programmer. Honeywell 664 experience is essential and TDS/IDS would be an asset. If it is a challenge that you seek, this company with its many development projects could give you just that. They have an enviable promotion path for ambitious individuals. REF: A2371

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A leading Saudi Arabian software house based in Jeddah require a Senior Representative to market HP and IBM software and computer services. Candidates with a proven sales track record, sound commercial applications experience and the ability to develop and present complete sales proposals should forward a detailed resume or contact Richard Wiles, Mella Technical Services Group, 334 Euston Road, London NW1 3BG. Tel: 01-388 2284. (2888)

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London Borough of Haringey

Haringey Information Technology Centre

The London Borough of Haringey wishes to appoint staff to its newly established 60-place ITEC. The main training activities of the ITEC will be in computing; electronics and office practice (with emphasis on the electronics office). In addition, it is intended to develop open access to its facilities (for business, schools and the community) as well as to develop saleable products and services of its own.

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**COMPUTING INSTRUCTOR**

and an

**ELECTRONICS INSTRUCTOR**

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Starting salaries above the minimum may be paid according to qualifications and experience. These posts are permanent appointments and N.C.C. conditions of service for APT&C staff will operate.

Applications are invited from candidates with appropriate qualifications and/or experience in computing (particularly Pascal and microprocessor assembly level programming and/or systems) and electronics (particularly digital or microprocessor based product development and engineering) respectively.

Teaching or training experience would be an advantage. For further details and application form (i.e. a.e. please) from Education Officer (Further Education), 48-52 Station Road, Wood Green, London N22 4TY.

Closing date: Within fourteen days of appearance of advertisement.

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(3717)

# SYSTEMS AND PROGRAMMING

## CONTRACTS

DATABASE ADMINISTRATOR DL/1 or IMS - London

CICS, DL/1 SYSTEMS PROGRAMMERS - London

SENIOR MVS SYSTEMS PROGRAMMERS - London

VME 2900, IDMS, TPMS, COBOL CONSULTANT - London

TANDEM, GUARDIAN, COBOL PROGRAMMER - London

DG MV6000, ADS/VS, TPMS, INFOS, COBOL - London

IBM OS/MFT or MVS, PL/1 PROGRAMMER - Liverpool

DATA GENERAL, RDOS, BUSINESS BASIC - S. Coast

ICL 2900, VME/B, TPMS, IDMS, SYS PROGS - London

IBM DOS/VSE, RPG II - North West England

**USA - ATLANTA & FLORIDA**

4 month contracts

COBOL, IMS PROGRAMMER

IMS D/B WITH MSS

COBOL, SHADOW 2 PROGRAMMERS

## PERMANENT

### PROGRAMMERS

This major international bank is currently looking for additional young COBOL/RPG II programmers to strengthen the existing team. You will work on twin IBM 4341's running VM/SP and MVS in both batch and on-line systems. Previous experience of banking or insurance systems is essential for those wanting to take immediate advantage of the excellent benefits package. Ref: B372/CW

### ANALYST/PROGRAMMER

(DPM designate)

West London

neg £12,000

Continuous expansion and forward orders looking to virtually double turnover means that this specialist service organisation now requires an experienced Analyst/Programmer. Three years BASIC under RSTS/E and a strong personality are required for you to be totally responsible for a development programme covering selection and installation of DEC hardware; new software and network products. Ref: B334/CW

### PROGRAMMERS

West End

£8,144 TAX FREE

(equiv. to £11,634.28 p.a.)

This international trading organisation is looking for a programmer with good ICL experience. Initially you will be responsible for writing add-ons and amendments to existing programmes and after a period of familiarisation, will be expected to develop new programmes as required by users. Previous experience of Range Cobol, Filetab and Info-Basic preferred. Ref: B386/CW

### SYSTEMS ANALYST

Middlesex

to £12,000

A major mainframe and mini user this national company is looking for an IBM orientated systems analyst. Based in Middlesex you will be part of a team supporting a variety of users in finance, marketing and distribution areas. Ideally you will be an experienced programmer with at least three years in analysis. Ref: B342/CW

### SOFTWARE SUPPORT

ENGINEER

Southern England

to £10,500 + car

A major manufacturer requires a young graduate with at least 18 months' experience of Cobol 74 and Fortran. You will be providing on-site and remote support to clients on installations, patches, dump-analysis, etc. A clean driving licence is as essential as the ability to communicate. Full product training will be given. Ref: B355/CW

### MICRO-COMPUTER BUFFS

South Wales

Neg. salaries

A rapidly expanding micro-computer manufacturer currently has vacancies for experienced DP staff at its development centre. Programmers should have had at least 18 months' experience in either 8609 or 8088 Assembler in an applications environment. Technical Authors should be experienced in writing both user and training manuals.

### IBM ANALYST/PROGRAMMERS

West London

c £13,500

We urgently require people with four to five years' experience in an IBM on-line environment. Candidates should have either PL/1 or COBOL as the major language and must have held responsible positions with large project teams. Future growth will offer excellent opportunities for the right people to pursue long-term careers with this international company.

The modern offices, that are easily accessible with ample car parking facilities, offer excellent working conditions and company benefits provide the right incentives for prospective candidates. Ref: 257

### IBM SYSTEMS PROGRAMMERS

Saudi Arabia

A software house urgently requires experienced DOS/VSE, CICS people to join their permanent staff. The first assignment will be in Saudi Arabia and subsequent posts could be in Europe. Ideal candidates would be single people who enjoy hard work, travel and want to retire early. You will be paid a UK based salary with related allowances for the country to be visited. Ref: 370

Please contact DAVID or KEITH at KPG or on 01-747 0969 or 01-399 8163 during the evenings or weekends.

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WORDPLEX, a leading manufacturer of micro based Word Processing and Office automation equipment, is seeking to expand its software development team. Vacancies exist for designers and programmers at all levels to work on an exciting new product range.

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Based at our SYSTEMS DIVISION offices in Windsor WORDPLEX offers excellent working conditions, highly competitive salaries, Bonus Scheme, Pension Plan, Health Insurance and Life Assurance, with company cars for the more senior positions.

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Systems Division  
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SL4 3DB

**WORDPLEX**  
Systems Division



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## TELECOMMUNICATIONS BUSINESS SYSTEMS

### SOFTWARE ENGINEERS WILTSHIRE

£9,500-£11,500

Situated in a beautiful part of the West Country our client is a highly successful and expanding division of a major international telecoms company specialising in the design, development, manufacture and marketing of advanced telecommunications and electronic business equipment.

Engineers educated to degree standard, with at least two years' post graduate experience are required. Knowledge of CORAL or other block structured languages is essential. In addition, familiarity with the use of CPM, Intel Development Systems or applications concerned with man machine interfaces would be advantageous.

Successful candidates will be offered a 4½-day week, 25 days annual leave, staff restaurant, P.P.P. at group rates, discount on company products, social and sports club, relocation assistance if necessary to an attractive housing area.  
Ref. GMF 20/1

# DATAMATICS

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Our clients are a market leader in their own particular field with a healthy turnover and solid commitment to the Data Processing facility.

Due to continuing development plans, particularly for the Manufacturing Systems areas, they require two further members of their Applications Development Team.

The current configuration consists of an HP 3000/44 with planned upgrade and utilises IMAGE QUERY VIEW and QUIZ together with FORTRAN and COBOL. A network of some 30 local and remote terminals is in operation.

Candidates are expected to be flexible and self-motivated with the potential to take on more senior roles quickly. Fortran and a manufacturing background are desirable.

In addition to the competitive salary, ample scope for progression is offered and cheap housing is available in the Peterborough area.

Contact either office

(3723)



**Targa Computer Recruitment**

8 Liverpool Street, London EC2M 7TH Telephone: 01-520 0041 Telex: 25531  
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*your appointments register*

### Programmers

**NCR/IBM/COBOL** to £15K  
Insurance - Banking London - H. Counties - N. Eng.

**COBOL/PL1/OS/CICS/IMS** to £13K  
Commercial H. Counties - Midlands - Manchester

**ICL/ON-LINE EXP** to £12K  
COBOL Surrey

**HONEYWELL** to £12K  
Systems Programming experience Middlesex

**DATA GENERAL ECLIPSE** to £11K  
Cobol Leicestershire

**IBM/RPG2** to £12K  
Financial/Insurance Home Counties

**IBM** to £16K  
System exp. Essex

**BASIC** to £11K  
Mini Computers London

**IBM/UNIVAC/COBOL** to £12K  
On-line/Database Surrey

**NCR 8200** to £14K  
Financial SW LONDON

### Analyst/Progs

**BURROUGHS/COBOL** to £14K  
Commercial Surrey

**IBM 34/38** to £15K  
London/Home Counties/North

**MICRON MICROS** to £16K  
Manufacturing/Production Control Surrey

**IBM/COBOL** to £12K  
Scotland

### Hardware/Support

**APPLICATIONS ENGINEER** to £15K  
Peripherals Support/Microprocessor Systems London plus International Travel

**SERVICE ENGINEER** to £20K  
DEC/VARIOUS MINIS Middle East

**TECHNICAL MANAGER** to £15K  
Disk Drive Technology Sheffield

**SOFTWARE TECHNICAL AUTHOR** to £15K  
Honeywell Bull Level 84/DPS 7 Paris

**PROJECT ENGINEER** to £11K  
Systems/DEC Beds/Manchester

**ENGINEERS** to £15K  
Torch Micro/Networking London

### Systems Analysts

**IBM/ICL** to £12K  
Stock Control/Commodity Control London

**CAD/CAM** to £16K  
Real time - Modelling Man - Essex - South West

**IBM/BURROUGHS** to £15K  
Commercial Accountancy London/Surrey/Manchester

**IBM SYSTEM 34/38** to £13K  
Meapics/Rpg Sussex

**ICL/ME29** to £16K  
Commercial Design Berks.

**IBM SYSTEM 34/38 MAAPICS** to £13K  
Sussex

### Software Engineers

**CORAL/PASCAL/MASCOT/C** to £13K  
Communications Glas/Hants/Sussex/Midlands/Manchester

**REAL TIME/ASSEMBLER** to £13K  
Microprocessor Design Suffolk Coast

**MILITARY SYSTEMS/RADAR** to £14K  
Coral - Mascot Hants/Surrey - Essex - S. West

**PDP/VAX/INTEL** to £13K  
Telecomms - ATE Surrey/London/Kent

**COMMS/TELECOMS/MOD** to £14K  
Mini/Mainframe E. Anglia

**HP3000/INTEL** to £12K  
CAD/CAM/ATE Home Counties

**TERMINAL EMULATORS** to £15K  
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# Sloangate

The Appointments Register

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(2741)

# Sales & Marketing Manager

Central London & Home Counties

£25K on target + car

Our client is one of the pioneers in the development of the microcomputer market in the UK, marketing packaged systems based on well known 8 & 16 bit micro's and minicomputers. Over the past five years a range of business software packages have been successfully installed within a wide variety of small and large users. The company has substantial expertise in developing and maintaining software for new business systems and following the recent introduction of a new and exciting range of micro's they are looking to expand their user base yet further.

Applications are invited from experienced sales and marketing professionals to join the executive management team in order to determine the company's marketing policy and to carry it through to a successful conclusion. The emphasis will be on a 'total involvement' approach and in the early stages it is impor-

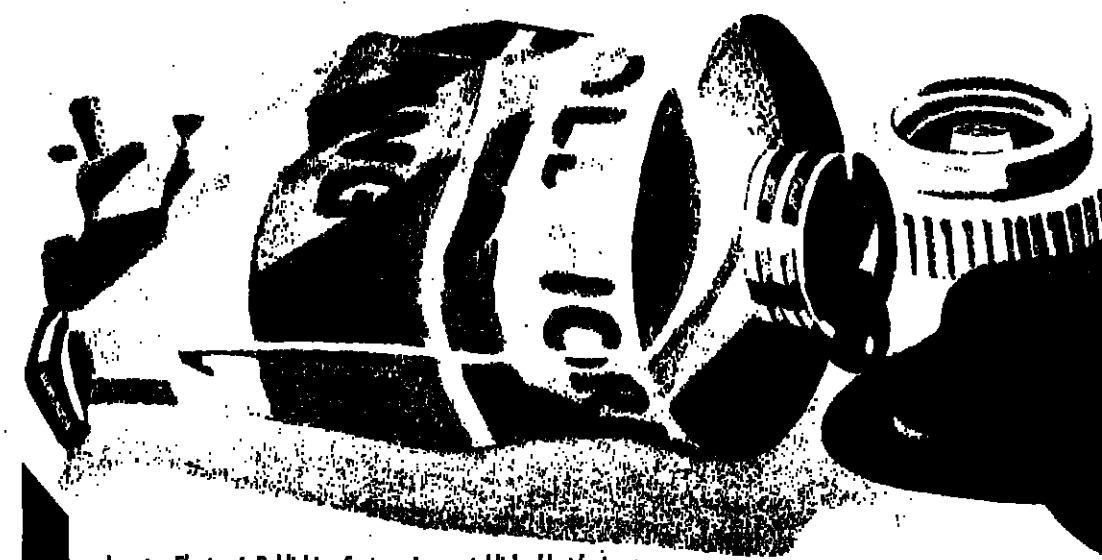
tant to make a contribution through incremental business.

Candidates should have an established track record in sales of micro's, mini's or business systems, complemented by a sound knowledge of commercial applications. In addition the ability to implement creative marketing policies will be a significant and determining factor.

The remuneration package includes a high basic salary, a negotiable initial guarantee and a generous commission scheme and it is expected that the successful candidate will become involved in an equity partnership within the first two years.

In the first instance contact Chris Denington on 01-631 4184 or write to him at:

A & A Consultants (Holding) Ltd, County House, 10 Little Portland Street, London W1N 5DF.



## LET'S MOVE INTO ELECTRONIC PUBLISHING!

Langton Electronic Publishing Systems is an established but fast expanding systems house specialising in information management. As a stable and profitable organisation they cover areas such as text and graphics, demand printing, viewdata, on-line retrieval systems, optical and video discs and computer assisted retrieval and delivery systems. With a sound investment in the future they have a continuing research and development programme ensuring their product lead in the international markets.

### Publishing Products Development

Programmer to £10,000

Analyst/Programmer to £12,000

These opportunities are for individuals to develop products in electronic publishing systems.

These products are portable across machines and support micro publishing and other media. IBM FORTRAN experience is essential together with IBM VM. If you have knowledge of IBM ASSEMBLER and experience on DEC VAX this would be advantageous.

### On-line Viewdata Product Development Programmer to £10,000

This opening is within a new development to build a private Viewdata system in an IBM CICS environment. You will have a background in IBM ASSEMBLER and a knowledge of DOS will be an asset. This is a first class opportunity to be trained in CICS and gain valuable experience for your career development.

### Systems Development and Support

Programmer to £10,000

Analyst/Programmer to £12,000

The Analyst/Programmer vacancy is to develop and support publishing software for the travel and tourist industries. The essential requirement for this post is IBM VM experience. Training will be offered in ICL 2900 VME/B thereby giving exposure to a variety of equipment. The successful applicant for the programming position will be involved in the development of abstract publishing systems and a DEC VAX FORTRAN background will be required.

### Excellent Benefits Package

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If you would like to be associated with this fast moving organisation or alternatively seek more detailed information then telephone in strictest confidence Miles Richards on 01-938 1804 (24 hours).

Information Processing People

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20 Kensington Church Street, London W8 4EP. Telephone: 01-938 1804 Telex: 22661



**PROJECT MANAGERS HERTS. to £18,000**  
Our client, a leading international organisation involved in the development of new communications systems requires experienced Systems Engineers with a wide knowledge of design and management experience in hardware and software communications software. Applications include voice and data communications, PABX message switching, local networking, through to micro based technology. Applicants must demonstrate sound technical, project control and managerial skills. Vacancies also exist for GRADUATES with 2 years' high level programming experience. Ref: C338

**DATABASE DESIGNER LONDON £16,000**  
Our client, a major Software Organisation, needs a Database Designer with IMS, IDMS, ADABAS or TOTAL experience. The successful applicant must have designed or have taken responsibility for the implementation of a major database management system. Ref: C147

**TECHNICAL PROGRAMMERS LONDON/ABERDEEN to £16,000+expenses**  
Opportunities exist within this Software House for Programmers with a technical or scientific background with DEC ASSEMBLER or any high level structured language to work on a variety of applications, with occasional travel to User sites throughout the U.K. Exposure to MINIS & MICROSOFT would also be an advantage. Requirements also exist for experienced CORAL Programmers using FERRANTI ARGUS for assignments in the U.K. Ref: E240

**ANALYST/PROGRAMMER BERKS. to £16,000**  
Our client, a leading market research organisation, require experienced COBOL or PL1 personnel to work within their customer support division. Good communicative skills are essential together with the ability to liaise at management level. Long term career structure within an excellent working environment. Ref: D317

**SENIOR SYSTEMS ANALYST E. ANGLIA to £16,000**  
A major international company needs Analysts at a senior level. Successful applicants will have a background of not less than 4 years in a database environment, and have worked on insurance applications. This IBM site would suit someone presently working as a Project Leader or Systems Analyst in a smaller company and looking for a stable future within this organisation. RELOCATION costs will be paid, where applicable. Ref: E350

**PROGRAMMERS & ANALYSTS to £16,000**  
A large number of our clients situated in London, Home/Southern Counties need Programmers and Analysts to Project Leader level with PL1 or COBOL experience to develop real time commercial systems including Banking and Insurance, using CICS and DL1. Knowledge of CICS or SHADOW an advantage. Benefits include BONUS schemes, MORTGAGE and insurance facilities. Ref: C368

**PROJECT LEADERS MIDDXX. to £15,000**  
Two major international companies require professionals with 5 to 6 years D.P. experience, ideally with an IBM background, to lead a small development team in DOS/VS & MVS environments. The successful applicants must have sound managerial/leadership qualities rather than specific hardware knowledge. Ref: C278

**SENIOR ANALYST LONDON £14,000+benefits**  
Major insurance organisation need an Analyst with 4 years' experience to take a knowledge of CICS and DL1, to take a leading role in the design, specification and implementation of a new database management system. A knowledge of insurance, or re-insurance would be useful. Excellent benefits package. Ref: C331

**BUSINESS ANALYST MIDDXX/LONDON £14,000**  
This well-established company requires someone to head a new team to develop and implement financial packages for the insurance and marketing software for new and existing computer users. The successful applicant will have a commercial systems background, and in particular a sound knowledge of accounting systems. Ref: C273

**ANALYST/PROGRAMMER LONDON c £14,000**  
An international Banking organisation are seeking someone with at least 2 years' experience on IBM SYSTEM/38. The main characteristics of the position include an in-depth working knowledge of RPG3 and CL, together with awareness of MIDAS. Excellent salary and bank benefits apply. Ref: E343

**SYSTEMS ANALYSTS X 2 KENT £11,000-£14,000**  
A leading financial organisation is setting up a new project team at its ICL DME site, and are now looking for 2 people with approximately 2 years in an analytical role gained preferably in a financial or insurance based environment. BUPA, SUBSIDISED MORTGAGE and normal senior level benefits apply. Ref: E238

**RPG3 ANALYSTS HANTS/LONDON £13,000**  
We have been retained by two leading consumer organisations to recruit Senior Analysts with at least 12 months' RPG3 experience. Commercial applications experience is essential together with the ability to supervise teams involved with new development. Ref: D308

**BURROUGHS TECHNICAL ANALYST to £13,000**  
Our client, an international organisation needs someone with a programming background to work within their technical support team, using large BURROUGHS equipment. The successful applicant will perform an analytical role in evaluating new software packages, and telecommunications equipment. Ref: C349

**SENIOR ANALYST & CHIEF PROGRAMMER SURREY to £13,000**  
An expanding financial company is seeking to recruit D.P. professionals with at least 4 years' COBOL, DOS/VSE experience; CICS, DL1 essential. The successful applicants will be part of a team involved with the development of a major financial project. Many attractive fringe benefits are offered. Ref: A234

**PROGRAMMING CONSULTANT SURREY to £13,000**  
A major Software House is looking for an extrovert D.P. professional to develop commercial COBOL applications on their ICL System 28. He/She will work alongside the Project Leader in setting standards and advising on the design of programming specifications, in addition to training existing personnel. The successful applicant should have at least 4 years' COBOL experience, together with a working knowledge of online systems. Excellent benefits package. Ref: A276



**BUICK COMPUTER SERVICES RECRUITMENT DIVISION**  
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**TECHNICAL SUPPORT/TEAM LEADER W. COUNTRY £12,500+**  
Our clients are seeking someone with either ICL 2960 (VME/B) or HONEYWELL DPS4 (GCOS) experience. He/She should have been in a Technical Support role for at least 5 years and preferably be familiar with TP/Database. An excellent salary, together with full RELOCATION costs, where applicable. Ref: B87

**BAL SYSTEMS PROGRAMMER SUSSEX £12,000+benefits**  
Our client, a leading manufacturer, is seeking to recruit a person with 2/3 years' experience gained within a DOS/VSE/VM environment; CICS, DL1 desirable. The successful applicant will be responsible for support systems, existing software and implementation of new software. The company offers a stimulating working environment and excellent benefits package. Ref: A323

**SYSTEMS ANALYST BEDS £12,000+**  
A leading international organisation is seeking an Analyst with at least 2 successful projects to his/her credit. Familiarity with IBM hardware together with COBOL is essential. CICS and DL1 will be advantageous. This position will entail OVERSEAS travel from time to time. Ref: B326

**PROGRAMMER/ANALYST S. LONDON £12,000**  
A leading manufacturing company utilising large IBM equipment is seeking someone ideally with 2 years' COBOL experience. Appreciation of CICS in an MVS/JES2 environment is desirable. The successful applicant will help supervise and develop new systems. Ref: B242

**SYSTEMS ANALYST SURREY £12,000**  
(ANY MAINFRAME)  
Our client has a requirement for an Analyst with at least 2 years' systems design experience; to work on a variety of commercial applications in an IBM 4300 environment. Knowledge of IBM hardware/software is not essential for this position. Ref: C229

**RPG3 ANALYST/PROGRAMMER SUFFOLK c £12,000**  
A well-established machinery manufacturing company is looking for an Analyst/Programmer. This position requires motivation and will involve minimal supervision. Experience on System/38 in a Production Control/Stock Control environment is essential. Ref: E199

**DEC VAX COBOL CITY to £12,000**  
Our client, a leading financial consortium, is looking for VAX COBOL personnel at levels ranging from Programmers with approximately 6 months' experience through to Senior Analysts. Successful applicants will have in-depth Banking experience. This progressive company offers an ANNUAL BONUS among their many benefits. Ref: E168

**RPG3 ANALYST/PROGRAMMER MIDDXX. to £12,000**  
Our client, a leading financial organisation requires someone with a minimum of 6 months' RPG3 experience preferably with financial applications expertise, to work within their System 38 environment. Excellent career path opportunities and benefits apply. Ref: D231

**PROGRAMMERS & ANALYSTS LONDON to £12,000**  
Our client, a leading Software Organisation needs Programmers and Analysts to perform Customer Support roles within the U.K. and Abroad. Applications include banking and other financial applications, together with communications software and hardware support. Applicants must have COBOL, BASIC or AIMS, together with good communicative skills, and be prepared for occasional worldwide travel. Experience of DEC environment would be an advantage. Excellent training facilities and opportunities for advancement in a fast-growing market. Ref: C330

**VAX PROGRAMMER/ANALYST S.W. LONDON to £12,000**  
This manufacturing company is looking for a Programmer/Analyst with 2 years' sound commercial VAX COBOL experience to join their development team. Knowledge of EASY-TRIEVE would be advantageous though not essential. In return for these skills the company offers an excellent benefits package to supplement the generous salary. Ref: E242

**SYSTEMS ANALYSTS KENT to £11,500**  
A major consumer organisation utilising IBM equipment have two positions for Systems Analysts to join their project development team. Applicants with experience in a database environment who have seen a project through from feasibility to implementation will find a worthwhile career with this well-established company. Ref: E58

**ANALYSTS/PROGRAMMERS HANTS to £11,200**  
A large international organisation is seeking to recruit further staff wishing to develop their skills within a progressive D.P. Installation. A working knowledge of COBOL is essential, preferably within a DOS/VSE, VM environment. A knowledge of BAL would be an advantage. Usual company benefits apply. Ref: D288

**PROGRAMMERS to SENIOR ANALYST level HANTS £11,000**  
We have been retained by a leading chemical manufacturing company to assist in the recruitment of personnel to help develop a wide range of commercial applications. Applicants must have a sound knowledge of COBOL, preferably within an ICL ME28 environment. Excellent working conditions and benefits apply. Ref: D287

**BASIC+(2) PROGRAMMERS SURREY/LONDON c £11,000**  
Two international Software Organisations require Programmers with 2 years' BASIC+(2) experience in DEC RSTS/E/VS environments. The successful applicants will undertake development of new applications within the organisations and for a variety of clients. Ref: A355

**ANALYST/PROGRAMMER LONDON c £11,000**  
A leading financial organisation wishes to recruit someone with 2 years' COBOL experience. Knowledge of CICS, DL1 & MVS together with supervisory experience will be an advantage. SUBSIDISED MORTGAGE, free pension scheme and other benefits apply. Ref: D336

**BASIC+2 ANALYST/PROGRAMMER KENT c £11,000**  
A large manufacturing company requires an Analyst/Programmer with BASIC+2 knowledge together with approximately 3 years' sound design and development experience. The site runs on RSTS/E & VAX/VMS systems and the successful applicant would be leading 6 Programmers, reporting directly to the Business Analyst. Pension facilities and company sports club are among many fringe benefits. Ref: E160

**Tel: 01-834 0061 (24-hours)**

Or call evenings and weekends  
REF. A: 01-318 2700  
REF. B: 01-794 5937  
REF. C: 01-942 1178  
REF. D: 01-580 5046  
REF. E: 01-466 5791

The above vacancies are only a token selection taken from our current files, and we are always pleased to hear from computer professionals wishing to further their career objectives

(3712)

**ANALYST/PROGRAMMER BERKS. to £11,000**  
A leading Systems manufacturing company require personnel with at least 2 years' COBOL experience, preferably in a GCOS environment, to work on a variety of commercial applications. Benefits include 26 days' holiday, BUPA, life insurance and subsidised canteen. Ref: D116

**RPG2 & RPG3 PROGRAMMERS LONDON to £11,000**  
Our client, dealing with international banking and financial business, needs Programmers with a minimum of 12 months' experience in RPG2 or RPG3, to cope with its substantially increased workload. Excellent career progression, including the opportunity to train in RPG3, where applicable. Ref: C280

**SYSTEMS ANALYST BERKS. to £11,000**  
Our client, an international manufacturing company, needs a Systems Analyst with a minimum of 2 years' COBOL experience, preferably gained within an ME 28 or ICL 2900 environment, to assist in the development of a wide variety of commercial applications. A knowledge of GEORGE 2+ and MAXIMOP would be an advantage. Excellent company benefits apply. Ref: D284

**JETSET ANALYST/PROGRAMMERS SUSSEX £10,000+**  
This major international company needs 2 Analyst/Programmers with a working knowledge of commercial systems design and RPG2. Assignments will include short trips to up to 14 subsidiary companies throughout Europe, and the opportunity to broaden systems and programming knowledge, progressing into RPG3! Excellent prospects. Generous benefits package includes RELOCATION expenses, where appropriate. A vacancy also exists for a Junior RPG2 Programmer with 6 months' experience. Ref: C355

**ANALYST/PROGRAMMER MIDDXX. £10,000**  
Our client, a major retailing organisation require someone with a minimum of 2 years' COBOL, VME/B experience to work on a variety of financial applications. Communicative skills with users is essential, together with the ability to liaise at management level. Excellent company benefits and working conditions apply. Ref: D346

**DEPUTY DP MANAGER C. LONDON £10,000**  
This position will ideally suit someone currently in an Analyst/Programmer role with RPG2 experience. The successful applicant must be able to liaise at User level and to assist in implementing new systems for their System/34. A pleasant outgoing personality is also essential. Ref: B318

**ICL COBOL PROGRAMMERS KENT to £10,000**  
A leading insurance company needs 3 COBOL Programmers. At least 2 years' experience in a programming role is essential and knowledge of DME, GEORGE 2 and FILETAB in an insurance environment would be an advantage, though these are not all essential. Excellent financial company benefits apply. Ref: E236

**ANALYST/PROGRAMMERS HANTS to £10,000**  
A leading Engineering company have openings for people with at least 3 years' COBOL or PL1 experience to undertake the development of manufacturing applications within a DOS/VSE environment. Knowledge of CICS an advantage. The successful applicants should be able to take full responsibility, and work on their own initiative. Excellent company benefits apply. Ref: D346

**ICL PROGRAMMERS BERKS/MIDDXX. to £10,000**  
We have been retained by a number of leading manufacturing companies to recruit personnel with at least 18 months' COBOL experience, ideally gained within a TME environment. A knowledge of GEORGE 2+ and MAXIMOP would be an advantage. Where necessary, training will be given on M.E. 29 software. Excellent working conditions and company benefits apply. Ref: D302

**WANG VS/RPG2/COBOL C. LONDON to £9,500**  
Our client, a large merchandise stockholding company need 2 Programmers to join their existing staff. The positions require between 6 months' and 2 years' exposure to a WANG VS system, and either RPG2 or COBOL knowledge to help maintain and develop systems within this small friendly company. Ref: E133

**BURROUGH'S PROGRAMMER SUSSEX £9,000+mortgage**  
A leading financial organisation is looking for someone with 2 years' COBOL experience on a large BURROUGHS mainframe. The successful applicant will be part of a team assigned to the development of a new system on their B8600 operating under MCP/DMS. Excellent benefits apply. Ref: A348

**PROGRAMMER/ANALYST SURREY £9,000+benefits**  
International financial organisation need someone with at least 18 months' COBOL experience gained in a DOS/VSE environment. The successful applicant will enhance their analytical skills, together with extensive exposure to User liaison. Excellent benefits scheme. Ref: A85

**PROGRAMMER/ANALYST HANTS £9,000+benefits**  
A leading financial organisation requires someone with a minimum of 2 years' BASIC experience, ideally gained within a DEC PDP11 environment. Knowledge of RSX or VMS would be useful, but training will be given. Excellent company benefits apply. Ref: D342

**JUNIOR COBOL PROGRAMMERS SUSSEX £9,000**  
A major international organisation is looking for IBM Programmers with a minimum of 12 months' COBOL experience. Successful applicants will be involved in the development of new systems on a large IBM mainframe operating under MVS. Excellent career prospects. Ref: A35

**COBOL PROGRAMMER X 4 ESSEX c £9,000**  
(ANY MAINFRAME)  
Further expansion to our clients D.P. division, together with new extensive development work now has urgent requirements for Programming staff. Preference will be given to applicants with IBM COBOL & CICS/DLI although training will be given. Flexi working hours together with five weeks holiday are two of the many benefits. Ref: B209

**ICL PROGRAMMERS N.E./E. LONDON c £9,000**  
(NEW SITE)  
Our clients have recently installed their first computer, an ICL 2988 and consequently seek Programmers preferably with VME/B COBOL experience. A knowledge of IDMS/Database (TP8) would be useful. Excellent career path and benefits apply. Ref: B364



**BUICK COMPUTER SERVICES RECRUITMENT DIVISION**  
72 Rochester Row  
Victoria London SW1P 1JU

The above vacancies are only a token selection taken from our current files, and we are always pleased to hear from computer professionals wishing to further their career objectives

(3713)

**PROGRAMMERS MIDDXX. to £9,000+bonus**  
A leading manufacturing company requires Programmers with at least 2 years' COBOL experience, ideally gained within an IBM 4341 environment, to work on the development of online commercial applications. A knowledge of IDMS would be an advantage. Benefits include annual bonus, subsidised restaurant, etc. Ref: D246

**COBOL PROGRAMMERS KENT to £9,000**  
(ANY MAINFRAME)  
An insurance company requires 2 COBOL Programmers. This IBM 4341 site runs under DOS/VSE with CICS and DL1 facilities. The opportunity exists for someone with sound COBOL experience to move into an IBM environment from other mainframes. A good career path together with excellent benefits apply. Ref: E252

**BASIC +2 PROGRAMMER HERTS. c £8,500+bonus**  
A leading leisure organisation are in need of a Programmer for their DEC PDP 11/70 site operating under RSTS/E. The position requires someone with at least 18 months' experience in a programming capacity with at least 12 months' BASIC +2. Reduced rates on holidays plus an ANNUAL BONUS are among many company benefits. Ref: E361

**IBM COBOL PROGRAMMER HANTS £8,000+benefits**  
Large publishing company needs someone with 12 months' COBOL experience, preferably gained within a DOS/VSE environment. The successful applicant will be trained in CICS/DLI. Excellent prospects and benefits package is offered. Ref: A204

## OPERATIONS

**NETWORK CONTROLLERS MIDDXX/LONDON to £11,500**  
Due to expansion of their communications network, two leading organisations require Network Control staff to join enthusiastic teams in MVS/JES2 environments using CICS & IMS. One of these positions would suit a Senior Operator interested in network development and associated hardware/software tools. (Days only.) Ref: C329

**MVS OPERATORS MIDDXX/LONDON to £10,400**  
This leading organisation requires Operators to Shift Leader level with MVS/JES2 experience to complement their expanding team structures. Excellent prospects and benefits apply. Ref: C344

**OPERATIONS ANALYST S.W. LONDON/SURREY £9,500**  
A leading financial organisation is seeking someone with at least 2 years' experience in this capacity, together with DOS/JCL, VM, CICS & VSAM. Excellent prospects and benefits apply. Ref: B362

**OPERATIONS SUPERVISOR MIDDXX. to £9,300**  
A leading manufacturing company requires someone with at least 2 years' operations experience within a DOS/VSE, VM, CICS environment. The ideal candidate will be capable of controlling a small operations team and deputising for the Operations Manager. (Days only.) Ref: D322

**IBM OPERATORS SURREY/LONDON/ESSEX £6,000-£8,500**  
We have numerous clients in and around London seeking Operators from Junior to Senior level. These various sites utilise DOS/VSE, OS/VS1 and MVS/JES systems. A large number include banking organisations offering excellent benefits including mortgages, interest free loans, etc. Ref: B123

**SENIOR OPERATOR SURREY c £7,600**  
A leading manufacturing company requires someone with 2 years' DOS/VSE experience for their 4341 installation. A 3-shift system is in operation. Knowledge of CICS/TP would be an advantage. An excellent career path is offered. Ref: A307

**ICL OPERATORS LONDON c £7,000**  
Our clients are seeking Operators with at least 18 months' DME/GEO 2 experience for their 2x2860 site. A 2-shift system is in operation and an excellent career path and benefits apply. Ref: B353

**UNIVAC OPERATORS HANTS £7,000+benefits**  
This expanding site requires Operators with a minimum of 18 months' UNIVAC 1100 experience under DEC 8, to work in a 3-shift environment. Excellent benefits including mortgage subsidy apply. Ref: C286

**DEC OPERATOR SURREY c £7,000+mortgage**  
Our client needs someone with at least 12 months' operating experience under RSTS/E (2 shifts). Excellent career path and fringe benefits apply. Ref: A207

**HONEYWELL OPERATOR ESSEX £6,500**  
Our clients are seeking someone with at least 18 months' GCOS experience for their Level 84 site. A 2-shift system is in operation and there are excellent prospects for the right person. Ref: B309

**JUNIOR VAX OPERATOR HERTS. to £6,000**  
This leading company has a vacancy for a Junior Operator with approx. 6 months' experience on a DEC VAX installation. A varied shift pattern is in operation and excellent benefits apply, including subsidised holidays. Ref: E316

**Tel: 01-834 0061 (24-hours)**

Or call evenings and weekends  
REF. A: 01-318 2700  
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## ANALYST/PROGRAMMERS

Weybridge, Surrey

Salary up to £12,000

Kewill Systems Limited is a small but expanding Systems House. We are developing a range of microcomputer based systems for production scheduling, capacity planning, stock control, material requirements planning, CAD/CAM, vehicle costing and scheduling.

We urgently need experienced analyst/programmers to work on the development of these systems on the latest multi-user hard-disk microcomputers and local area networks.

If you would enjoy the challenge of a very varied job, involving all aspects of systems development plus customer training and after sales support, then please telephone or write to the Managing Director:



Kewill Systems Limited  
Clive House  
Queens Road  
Weybridge  
Surrey KT13 9XB  
Tel: 0932-52046

(1778)

## Ferranti Cetec Graphics Ltd

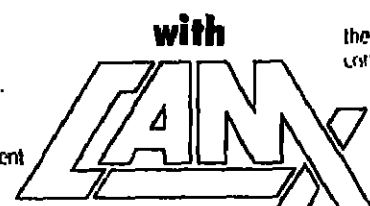
Within the rapidly growing mechanical engineering market for CAD/CAM systems, CAMX designed and developed by Ferranti Cetec, is one of the most technically advanced systems available. CAMX incorporates 2D design and drafting, 3D solid modelling, finite element mesh generation, numerical control and engineering data management functions, linked together to form a comprehensive CAD system. It operates on the DEC VAX range of computers.

With an expanding market and state of the art CAD/CAM technology, a number of talented software development and support staff are now required to work in project teams addressing CAD/CAM applications.

A good Computer Science degree or equivalent experience is the likely background for candidates although exposure to interactive graphics, data structures, development and support of very large programs or engineering applications would be a distinct advantage.

In addition, we are also looking for software staff with experience of CAD software for electrical/electronic schematic drawing and printed

## SOFTWARE DEVELOPMENT AND SUPPORT



with



current layout. Knowledge of the application of least as important as software experience in this area.

Most of the work is in Britain, with small amounts of VAX assembly code running under VMS.

By joining Ferranti Cetec's software development group candidates are afforded real opportunities to extend their software skills.

Salaries will fully reflect the candidates' value in the marketplace and form part of a comprehensive benefits package. In addition relocation expenses will be provided to an area where both private and rented housing abound and which offers the cultural and social facilities of Scotland's capital city. Local confidential daytime and evening interviews can be arranged.

For further information and an application form, phone Ernest Bennett, or write to him with full details at: Ferranti Cetec Graphics Limited, Bell Square, Brucefield Industrial Estate, Livingston, West Lothian EH54 9BY.

Telephone: Livingston 411583.

Further, there is the frustration of giving up all those hard won prospective accounts and starting again with some unfamiliar product, company, territory, etc.

However, when a salesperson makes a voluntary or compulsory decision to go elsewhere, then money is certainly a significant part of the equation. It is then that the salesperson is vulnerable to the "on-target earnings" trap and the potential employer can lose a good candidate because the truth does not compare favourably with someone else's illusion.

The operative word is achievable. Can the task that has been set actually be completed? Is the product good enough in terms of competitive price and performance? Is there actually a market for it? Has the territory concerned been nurtured, neglected or has it been pillaged by the previous incumbent?

The latter is obviously very important, but it is insufficient to leave the qualification of the sales target to such broad comparison. More detail is essential. The first test is to discover how the sales target for the territory concerned is actually calculated. You would be surprised how naive the process can be within many companies.

Is it merely the national target divided by the number of people in the salesforce? Best avoid that one. It is important to ensure that any sales target is customised to the territory concerned, accounting for its unique problems and opportunities and the implications of the inevitable "learning curve" that any new employee must experience.

To have the same target as other established salespeople would be a nonsense.

Another method of checking a target is to break it down into the number of

sales calls per day and the amount of prospecting that can be expected to achieve the stated objectives.

What is the typical unit value of a sale? How many units need to be sold in a year in order to achieve quota? How many "hot prospects" (as opposed to suspects) need to be generated in order to produce the number of sales required? How many sales calls and/or demonstrations does this imply? How much cold prospecting in terms of telephone work, letter writing, etc, is likely to be taken up by travelling around the designated territory? How much time is likely to be taken up by travelling around the designated territory? How much time will be needed for administration and sales meetings?

If the result of these calculations is an apparent demand for a 10-day-week, then there is obviously need for reconsideration as far as the sales target is concerned.

The other day I was with a client who complained bitterly about the loss of an excellent candidate to one of his competitors. He thought the remuneration package offered by his company was very reasonable. It was based on realistic objectives and provided total earnings above average for the industry.

The territory was a good one and the company's product is excellent. Yet the potential recruit went to work for a competitor, simply because he could earn £5,000 a year more on achievement of quota.

However, it transpired that the sales target set by the competitor was almost twice as big as the one related to the territory our client wished to man. Further, if the candidate had been able to achieve with our client, the total sales required by the competitor, he would actually have earned £10,000 above quota earnings.

Maybe the candidate decided against our client for reasons other than financial implications, but it is almost certain he fell into the "on-target earnings" trap, simply by not working out what could be earned as an employee of any of the companies concerned on achievement of sales target.

A good way of doing this is to draw up a matrix with the value of each total sales target along one axis and the method of payment proposed by each company along the other.

You could be surprised which company is the better payer in a final analysis.

Alan Williams

**PUZZLE ANSWER**

THIS table, which should be read downwards in four columns, displays a simple system for identifying all six weights. Each slanted stroke denotes that the scale has tipped, while each horizontal stroke indicates an equal-weight result. Capital letters confirm "heavy".

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## SALES BIT

# Don't ever be lured into the on-target trap

HAVING dwelt on recruitment from the employer's point of view, I will now deal with an aspect of this process with the welfare of the potential recruit in mind. The subject refers to the implications of that phrase beloved by all sales recruitment agencies, "on-target earnings".

Salespeople change jobs for a variety of reasons - broadening of experience in terms of product, market or job function; escape from unsatisfactory employment in company, products or management terms; avoidance of a bad relationship; increase of status or income; and so on.

In reality, few salespeople move simply for higher rewards. They may move because failure or extreme difficulty of sales success (there is a difference!) is having a negative impact on earnings, but not to earn a few thousand pounds more on 100% performance than they are earning at present.

What's the point? At least they know the reality of their present job, that the sales objectives and potential earnings are achievable, whereas there are no absolute guarantees with a new employer.

Furthermore, there is the frustration of giving up all those hard won prospective accounts and starting again with some unfamiliar product, company, territory, etc.

However, when a salesperson makes a voluntary or compulsory decision to go elsewhere, then money is certainly a significant part of the equation. It is then that the salesperson is vulnerable to the "on-target earnings" trap and the potential employer can lose a good candidate because the truth does not compare favourably with someone else's illusion.

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## COMPUTER SYSTEMS ENGINEERS

Studio Capital Projects Department

Two vacancies exist in the Computer Systems Section of BBC Studio Capital Projects Department.

Computer Systems Section is responsible for the analysis, design and implementation of software controlled systems for use in a broadcast environment. This includes audio and video routing, digital signal manipulation and teletext generation together with the conventional engineering and environmental aspects of business computer installations.

The successful applicants, male or female, would assist initially in this work under the guidance of more experienced engineers, but would be expected after two or three years to take full responsibility for smaller projects.

Applicants must possess a degree or equivalent qualifications in engineering or computer science, and/or be a corporate member of a relevant Chartered Institution. They should have at least one year's experience in the implementation of mini or micro computer systems, and preferably be conversant with the principles and practice of broadcast engineering.

Personal qualities are important and candidates must possess the powers of fact, drive and initiative and must be capable of clear expression, both verbally and in writing.

The salary is on a scale rising to £11,682 with entry normally between £9,211 and £9,963 (review in process) and includes London weighting.

The appointment will be in Central London provisionally, but the permanent base will be at the White City in West London from mid to late summer 1983. Candidates must be prepared to work at sites throughout the United Kingdom from time to time.

Application forms may be obtained from Engineering Recruitment Officer, BBC, Broadcasting House, London, W1A 1AA, quoting reference number 83.E.4060/CW.

For further information telephone Paul Jarrett, Head of Computer Systems Section, S.C.P.D. on 01-576 7041.



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(1715)

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£10,000

South London

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WEST MIDDLESEX

£9,000 inc.  
shift allowance

Our client forms part of the information technology group of one of the most successful manufacturing organisations in the country. Employing over 500 staff, they provide a comprehensive range of bureau services to industry, government and commerce throughout the UK.

Based in West Middlesex the installation consists of an IBM 3081 and an Amdehl V6 running under MVS utilising CICS and IMS. In addition the company also uses VTAM and TSO.

A vacancy now exists for a computer operator with a minimum of three years' experience. Detailed knowledge of MVS is essential.

The company operates a four shift system with eight hour shifts Monday to Friday and twelve hour shifts at weekends.

In addition to excellent salaries and a comprehensive benefits package our client offers an opportunity to develop a stable career in a thriving department.

JA320/1

## OPERATOR

CITY

circa £6,500  
+ shift allowance

A leading independent organisation based in the city has established a prominent position both in the UK and overseas. To support increases in trading and still maintain a high standard of service essential to its users demands the use of advanced computer technology.

Their substantial investment in hardware consists of three IBM 4341s running under DOS/VSE and VM/CMS utilising CICS. The programming languages are Cobol and Assembler.

Candidates should have a minimum of two years' experience gained in a similar IBM installation. In depth knowledge of DOS/VSE, VM/CMS and CICS is essential as is the ability to work in a large team environment.

Company benefits are first-class and include a mortgage subsidy, non-contributory pension, interest free season ticket loans, cheap personal loans, subsidised lunches + LV's and relocation assistance in approved cases.

JA380/2

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PR320/3

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Vacancies now exist for Operators with a minimum of one year's experience gained in a large installation utilising MVS. The software configuration also consists of CICS, VM/SP, DBMS and VTAM. A working knowledge of any of these would be an advantage.

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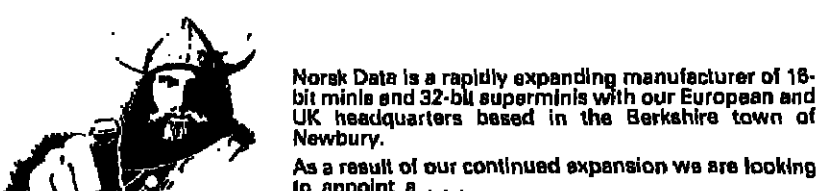
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Norsk Data's corporate marketing group responsible for the markets in UK, France, Switzerland and Germany is based in the UK. Additional specialists are needed for the future development of our technical and scientific markets. The work involves careful analysis of the markets and correctly assessing trends and new openings. Being responsible for a market segment involves steering the company's marketing efforts towards the selected goals and guiding R & D and sales departments along the agreed lines. This means exercising sound judgement and persuading people to work on the areas selected. It means taking responsibility for success in these areas. Clearly it carries with it membership of the corporate Product Committee for technical and scientific products.

The Marketing Executive must be steady in the identification and pursuit of successful long-term and short-term goals. It is a job which carries strategic corporate responsibility.

In Norsk Data we have some of the finest products in the industry. To date they have been under-exploited: that is why this job represents an opportunity to make an out-of-the-ordinary contribution in an international computer manufacturer.

The Company language is English; additional relevant languages would be an advantage. The standards we set are high so naturally we offer an excellent remuneration package: 4 weeks' annual holiday, BUPA membership, accident insurance, contributory pension scheme, and group bonus scheme.

Please telephone Peter Bonne or Erik Skoc on Newbury (0835) 35544 or if you prefer, write enclosing a c.v. to Norsk Data Ltd., Strawberry Hill House, Strawberry Hill, Bath Road, Newbury, Berks RG13 1NG. Telephone Newbury (0835) 35544, Telex 349815.



(1374)

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Please reply to:  
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Sphinx Limited  
45-47 Moorfield Road, Maidenhead  
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Tel. No. (0428) 76343

(1738)

